



MICHIGAN DEPARTMENT OF TRANSPORTATION

**State Long Range Transportation Plan
2005-2030**

Socioeconomics Technical Report

*Prepared by
The Michigan Department
of Transportation
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With assistance from



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MI Transportation

MICHIGAN LONG RANGE TRANSPORTATION PLAN



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Executive Summary

Purpose

The purpose of the *Socioeconomics Technical Report* is to identify historical, existing, and projected conditions relative to population, employment, households, income, vehicle availability, migration, and environmental justice and to discuss their respective implications for statewide transport.

Results

The demographics in Michigan will be changing in the next 25 years. These changes will have an impact on decision-making for transportation planning, transportation finance, and transportation facilities design. The summary results of the population, households, employment, income, and environmental justice analysis are:

Population

- From 1980 to 2005, the state has grown at an average annual rate of 0.4 percent, with a decline in population in the early 1980s; the population is expected to grow an estimated 12 percent between 2005 (10.1 million) and 2030 (11.3 million).
- Forecast show that 96 percent (1.16 million) of the 1.2 million population increase (2005-2030) will be in the 65 and older age group during from 2005 to 2030.
- From 1980 to 2005, the northern Lower Peninsula, the Grand Rapids area, and portions of southeastern Michigan have had relatively high rates of population growth, with greater than 50 percent increases over 25 years. For 2005 to 2030, the Grand Rapids area, the northwestern portion of the Lower Peninsula, Keweenaw County in the Upper Peninsula, and the high growth counties in Southeastern Michigan (especially Livingston) will experience growth rates of 25 percent or higher. All other areas of the state will have a 25-year combined growth rate of less than 25 percent.
- The age distribution will significantly change from 2005 to 2030:
 - the senior population (age 65 and over) will dramatically increase to over 20 percent of the population;
 - the prime working age population (25-64) will shrink from 55 percent to 47 percent; and
 - the under-25 population will slightly decrease from approximately 35 percent to 32 percent.
- Increases in population growth will continue to place greater demands on a relatively static transport system. These demands may lead to increased congestion in urban and suburban regions.
- The dominant socioeconomic change in Michigan is expected to be the increase in retired populations. Transport to health, recreational, and other activities will increase

in importance as the retirees transition from the daily commute to different travel patterns characteristic of older travelers.

- The senior population will remain in the labor force longer, thereby contributing to a greater midday peak, increased vehicle-miles of travel (VMT) on the system, and possibly increased congestion.
- The senior population concentrations in urban and suburban areas will likely result in the growth of senior adult living communities and assisted living centers for seniors. This may require state/local governments to consider developer incentives to make these types of facilities transit-friendly.
- National trends indicate the increasing role of foreign-born populations in both workforce and travel demand.

Household

- Household growth historically has been more aggressive than population growth—almost 1½ times faster. The number of households is expected to increase about 19 percent from 2005 to 2030. The fastest growth will occur in single-person households, which are expected to grow 37 percent during this period. For two-person households, the percentage increase is expected to be 28 percent. The number of relatively large households (those with 4 or more people) is expected to decline by about 0.5 percent from 2005 to 2030.
- Household size, or the average number of people in each household, has declined substantially since 1970, from approximately 3.3 persons per household in 1970 to about 2.6 persons per household. This reflects the aging of the population and that older people tend to live alone or with one other person.
- From 1990 to 2000, the number of zero-vehicle households dropped by over 15 percent, as compared to an increase of about 24 percent nationally during the same period. It is not clear what accounts for this drop, but it may be a reduction in transit dependency due to an increase in incentives for auto ownership.
- Increases in the number of households will increase both the number of trips on the system and overall VMT in Michigan.
- The dispersion of travelers into smaller households can potentially increase vehicle-miles traveled, trip lengths, and the ratio of vehicle trips to person trips. Land use decisions will most likely determine how changes in household size and composition affect transportation system needs.

Employment

- Employment growth from 1980 to 2005 was 0.7 percent per year (from 1980 through 2005). This growth is projected to slow considerably, from 2005 to 2030, to 0.5 percent per year. These relatively smaller employment gains over the long term largely reflect the anticipated decline in the prime working-age population.

- The great majority of the jobs are in the southern portion of the Lower Peninsula, primarily in the Flint, Saginaw, Detroit, Grand Rapids, Lansing, Ann Arbor, and Kalamazoo metropolitan areas. The areas of historically high employment growth will generally continue to experience higher than average employment growth for 2005 to 2030, except that the bulk of the growth in the Detroit area will occur in counties further out from the central city.
- Basic employment (manufacturing, farming/agriculture, mining, forest, and fishing) has been slightly declining or flat from 1980 to 2005, and the same trend is projected for 2005 to 2030. The growth in Michigan's employment has been completely driven by non-basic industries (retail, construction, services, government, and wholesale) and this will continue for 2005 to 2030. The non-basic employment has historically grown at about 2 percent per year and is projected to slow to less than 1 percent per year for 2005 to 2030.
- The national shift from a manufacturing economy to an increasingly service-oriented economy will accentuate the role of non-basic jobs, markets, and activities in Michigan for 2005 to 2030. The movements of commuters, consumers, and long distance travelers are likely to take on added significance to support this change. The need to move commodities and products will remain essential to protect the vitality of a proportionally smaller, yet economically critical manufacturing base within Michigan's overall economy.
- In 1970, manufacturing was the dominant sector, followed by services and retail. The manufacturing share has dropped from over 30 percent in 1970 to less than 20 percent in 2000, and will decline to just below 15 percent by 2030. The services sector, on the other hand, has increased from just above 15 percent in 1970 to greater than 30 percent in 2000 and will increase to almost 40 percent in 2030.
- The labor force will tighten as compared to the labor force growth of the past 15 years. The labor force has grown by approximately 500,000 people in the past 15 years, yet will only increase by approximately 200,000 for 2005 to 2030.
- The international in-migration is offsetting the out-migration of the workforce-age population.
- With the overall tightening of the labor force, it is also possible that employers will relocate for better proximity to localized labor pools, further altering regional VMT patterns and levels.
- The shift to an increasingly service-oriented economy will generate a relatively high level of non-home-based travel between offices, clients, and customers. This shift will increase off-peak travel volumes and VMT, potentially exacerbating congestion in urban-suburban regions of the state.

Income

- Over the past 15 years, personal income per capita kept pace with the national trend. In the past few years, however, Michigan's income per capita has slightly lagged behind the national average.

- The metropolitan areas with the highest employment and population concentrations also generally had the highest personal income per capita.
- Increases in per-capita disposable income increase the number of non-work related activities available to travelers.
- In the lowest income brackets, there is also the potential for income to affect auto ownership. Rising levels of disposable income for low-income, zero-auto households may allow them to purchase a vehicle.

Environmental justice (EJ)

- In Michigan, the EJ population and application in the metropolitan areas are defined by the metropolitan planning organizations (MPOs). The non-MPO areas' EJ populations and applications are defined by MDOT. This report focused only on the MDOT areas.
- The EJ populations are low-income (median household income is at or below the Department of Health and Human Services poverty guidelines) and minority populations (Black, Hispanic, Asian-American, and American Indian/Alaskan Native).
- The increasing diversity of Michigan's population requires the involvement of EJ stakeholders early in the project development process. The MI Transportation Plan includes an outreach to these populations throughout the overall development of the plan to complement the statistical and geographic identification of key areas in this technical report.

Implications to Transportation Decision Making

Understanding the socioeconomic conditions pertaining to Michigan's transportation system is critical to the transportation decision-making process. Decision makers may be challenged in the following ways over the next 25 years:

- Continued population decentralization (especially in areas under-served or not served by transit) increases reliance on private auto use and directly influences average trip lengths. This will continue to place greater stress on suburban arterials in the form of more congestion. Resulting longer trip lengths may extend peak commuting periods. Demand-side congestion reduction measures such as carpooling, tele-work, and parking cash-out options may need to be proposed as ways to manage this demand.
- This transition of the senior population from the daily commute to different travel patterns characteristic of retirees and older travelers may require changes in how transportation decision-makers look at road design, traffic engineering, and road signage, and possible changes in driver re-testing at certain ages.
- The senior population's extended length in the labor force and the resulting greater midday peak and increased congestion could have an impact on how the transportation and traffic operations are handled during this mid-day period.
- Aging population concentrations in urban and suburban areas will likely result in the growth of senior adult living communities and assisted living centers for seniors. This

may require the state (or other authority) decision-makers to consider developer incentives to make these types of facilities transit-friendly.

- Road signage, travel advisories, and other transportation system information may need to be designed using multiple languages to communicate with more diverse segments of the population. Transportation providers may need to revise customer service staffing policies by hiring workers with multilingual skills to better serve these increasing immigrant segments of the population.
- The expected increases in the number of households could have an impact on the motor fuel revenues and how congestion will need to be addressed.
- The tightening of the labor force and relocation of employers to remain in proximity to localized labor pools may case a change in the jobs-housing balance. This spatial reorganization will need to be carefully analyzed by transportation and local governments on their impact on their tax base and how these longer-distance commuters are served.
- The aging population may demand more choices regarding workforce participation (such as phased retirement and retirement careers or businesses). This would require a different set of transportation alternatives relative to living and daily travel options, including the need for new signage and infrastructure to meet standards found safer for older drivers. Transit and roadway capacity in off-peak periods may need to be increased to accommodate more work trips for phased retirees working on a part-time basis. Finally, pedestrian amenities (such as sidewalks or crosswalks) may need to be added to areas where senior populations constitute a large share of the walking population.
- Even though zero-auto households represent a relatively small share of Michigan's households, if rising income makes autos available for these households, there may be localized increases in congestion and parking issues in areas where such households are highly concentrated.

Conclusion

This technical report is offered as a resource for understanding socioeconomic conditions pertaining to Michigan's transportation system, and as an input to the integrated *MI Transportation Plan*. The findings highlight changes in population, household size and composition, age groups, employment, and environmental justice populations. Significant changes identified in this report clarify ways in which the aging population, the shift to an increasingly service-oriented economy, and the increasing diversity of Michigan's public are relevant for understanding Michigan's transportation system needs. Linkages between the findings of this report and other technical reports of the *MI Transportation Plan* are identified relative to how socioeconomic change serves as a driver for the conditions and performance of Michigan's transportation modes as well as the emerging and changing labor and consumer markets served by the system to the year 2030.

Chapter 1. Introduction

Michigan's transportation system is a fundamental resource that provides its residents and businesses with access to markets, jobs, goods, and services in the state, the nation, and globally. To understand how transportation in Michigan will look over the next 25 years, it is necessary to examine the socioeconomic and demographic factors that affect travel. The purpose of this report is to identify historical, existing, and projected conditions relative to population, employment, households, income, vehicle availability, migration, and environmental justice and to discuss their respective implications for statewide transport. Several graphs are presented to provide a visual picture of the changes in these factors over the past 25 years (1980-2005) and for the next 25 years (2005-2030).

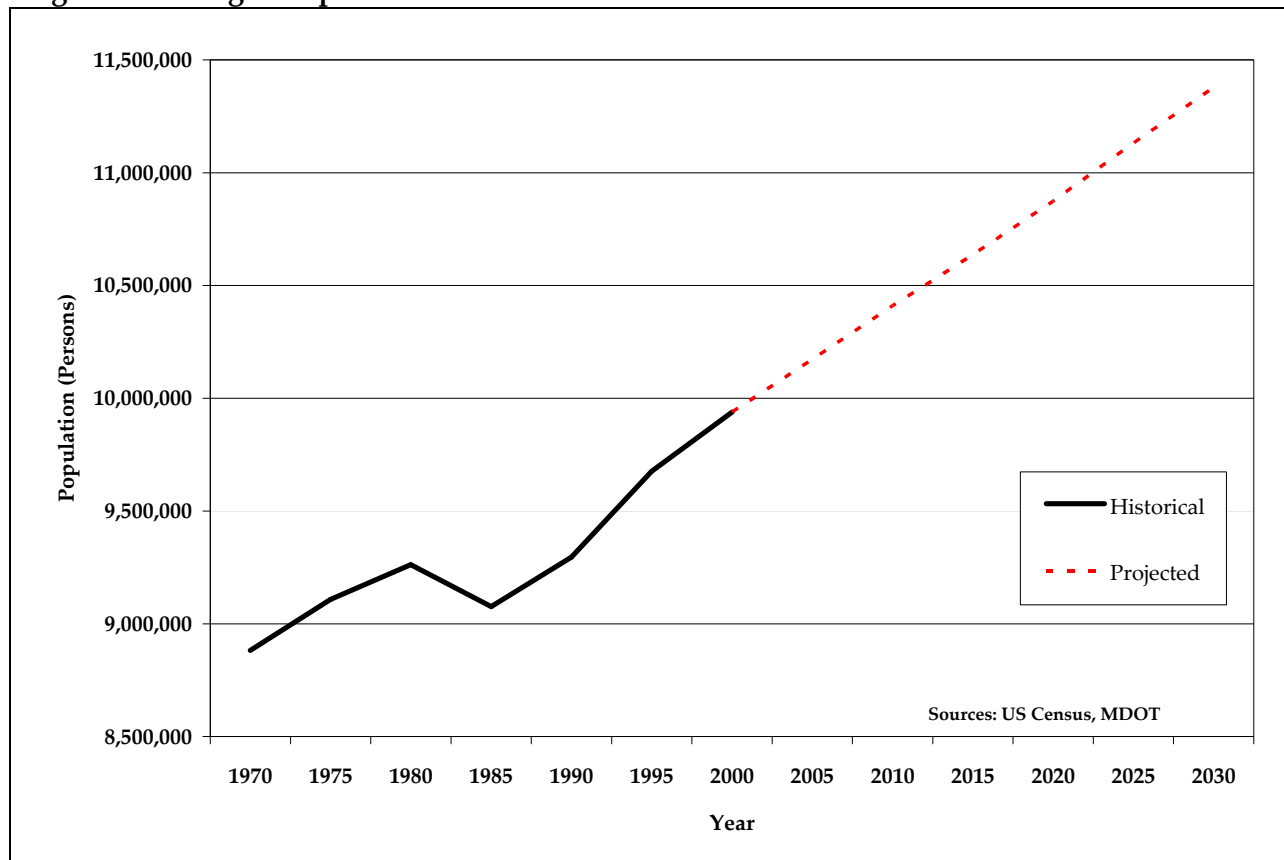
Note: The terms "demographics" and "socioeconomics" are used interchangeably throughout this report

Chapter 2. Demographics

2.1 Population

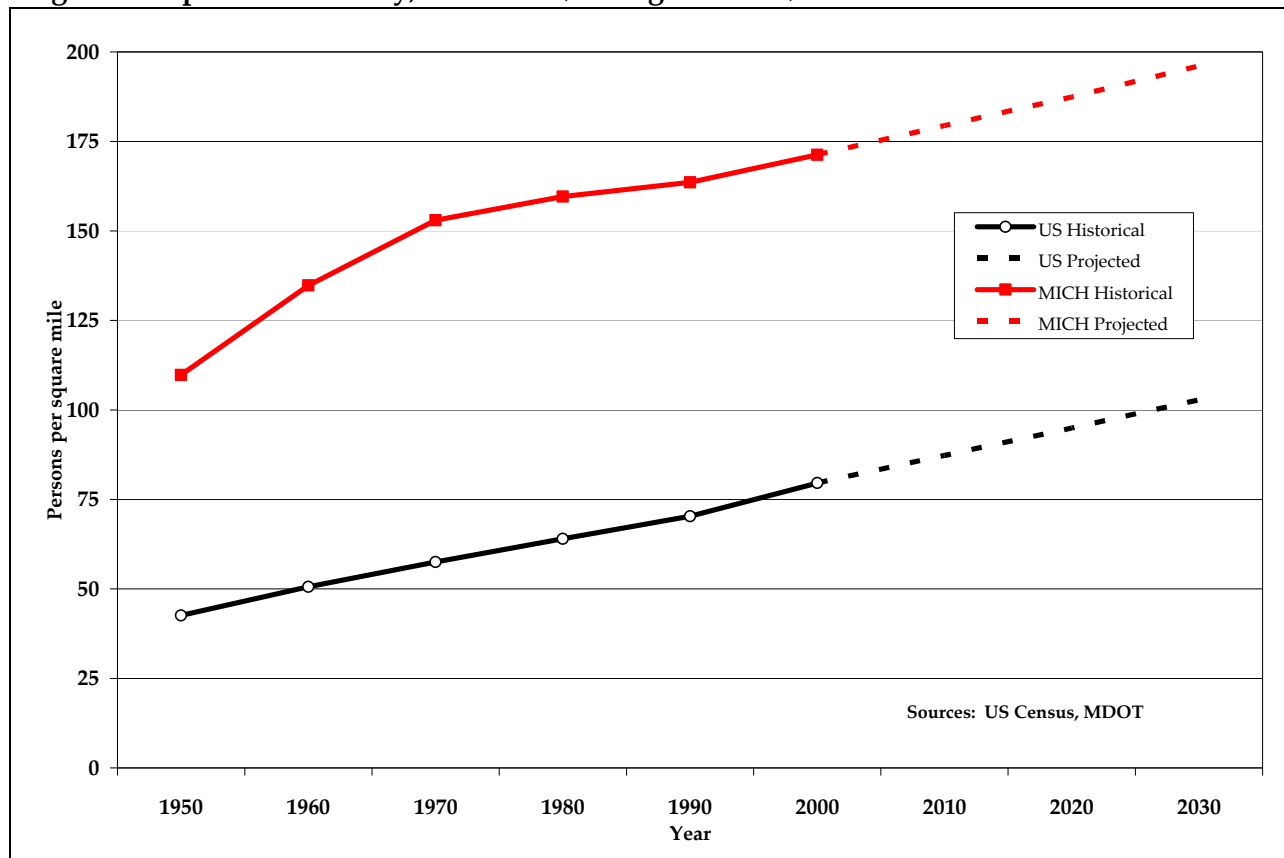
In 2005 the state of Michigan had an estimated population of 10.1 million people, which ranks it eighth in the country. Over the past 25 years, the state has grown at an average annual rate of 0.4 percent, with a decline in population in the early 1980s due to an economic recession with high unemployment that resulted in significant out-migration of residents seeking jobs in other parts of the US. The population is expected to grow an estimated 12 percent between 2005 and 2030; that is, to go from 10.1 million in 2005 to about 11.3 million in 2030, as illustrated in **Figure 1**.

Figure 1. Michigan Population 1970-2030



Michigan is a relatively densely populated state, with the majority of the population concentrated in the southern one-third of the state, and 48 percent living in the seven-county Detroit metropolitan planning area (consisting of Livingston, Monroe, Wayne, Washtenaw, Oakland, Macomb, and St. Clair Counties). As shown in **Figure 2**, the average state has a population density of approximately 80 persons per square mile. The population density in Michigan is approximately twice the national average and is projected to remain so.

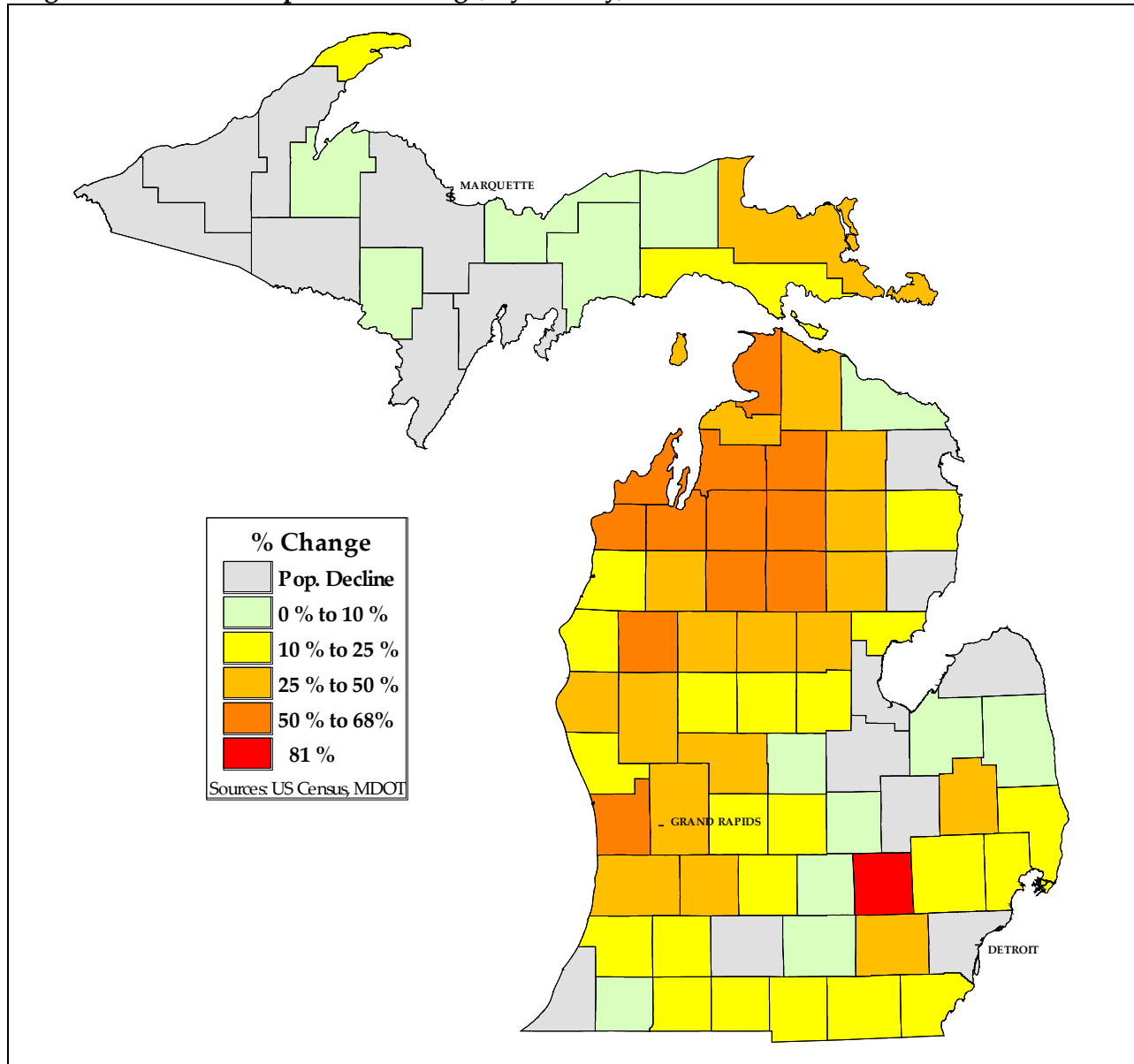
Figure 2. Population Density, 1950-2030 (Michigan vs. US)



2.1.1 Population by County

In the past 25 years (1980-2005), certain areas of the state have had higher percentage growth in population than others. As shown in **Figure 3**, the northern Lower Peninsula, the Grand Rapids area, and portions of southeastern Michigan have had relatively high rates of population growth, with greater than 50 percent increases over 25 years. The Upper Peninsula and the eastern portion of the state generally have had stagnant or declining population.

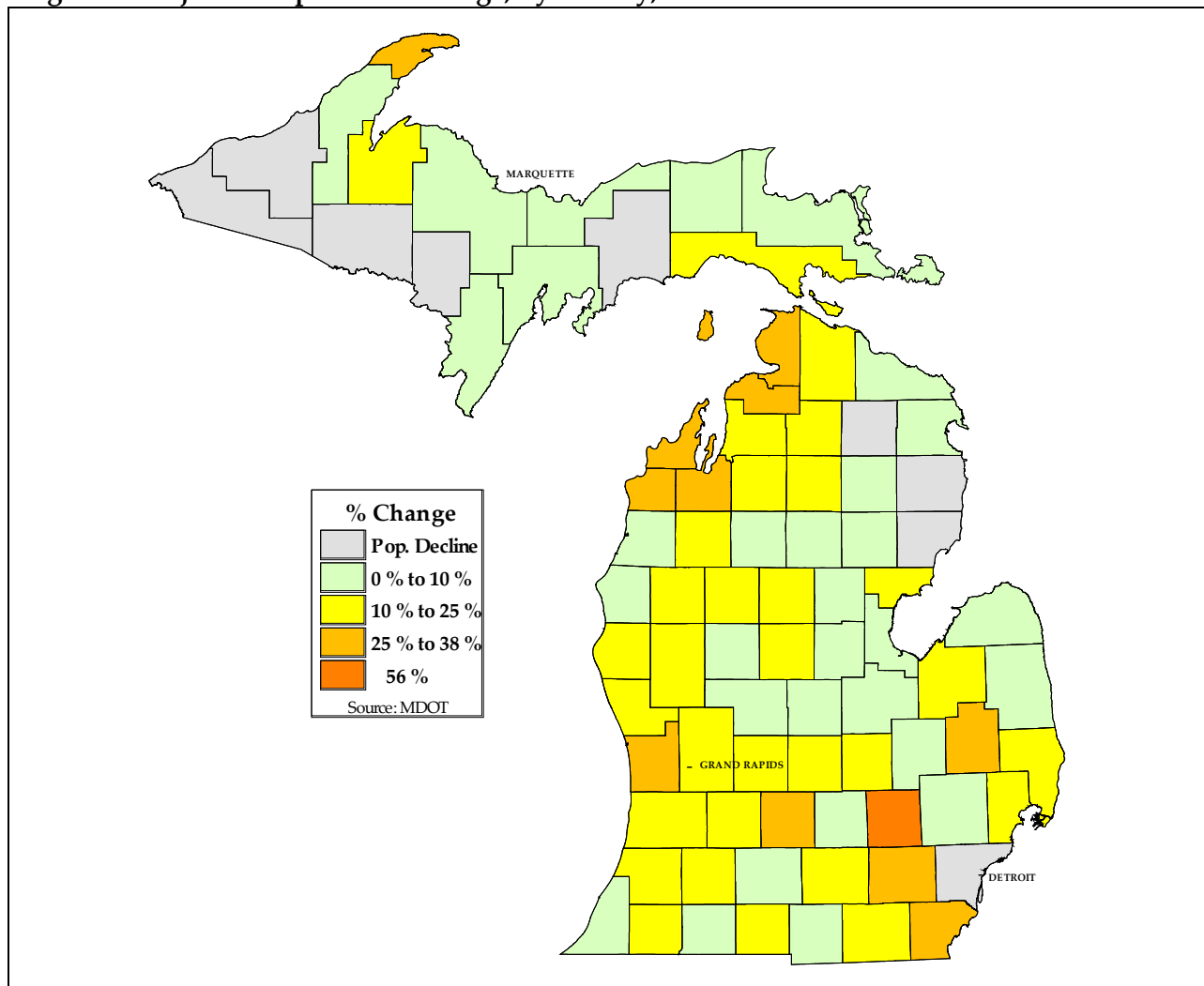
Figure 3. Historical Population Change, by County, 1980-2005



In the next 25 years (2005-2030), the rate of county population growth will decline compared to the past 25 years. As shown in **Figure 4**, the Grand Rapids area, the northwestern portion of the Lower Peninsula, Keweenaw County in the Upper Peninsula, and the high growth counties in Southeastern Michigan (especially Livingston) will experience growth rates of 25 percent or higher. All other areas of the state will have a 25-year combined growth rate of less than 25 percent, with the western portion of the Upper Peninsula and the eastern portion of the Lower Peninsula projected to experience generally stagnant or declining population.

A note on Keweenaw County: Through this demographic chapter, Keweenaw County, the northernmost county in the Upper Peninsula, will be grouped with very high-growth areas. Population growth appears to be linked to a growing segment of the retiree population seeking more remote locations as well as the fact that the initial population figures are quite small. The employment growth is largely due to growth in tourism in the county.

Figure 4. Projected Population Change, by County, 2005-2030



2.1.2 Population by Age Group

A person's transportation requirements typically change as one ages. Children need to get to school, daycare, and various activities; younger adults go to college and/or begin working more and have different schedules than middle-age persons; and older adults are nearing retirement or have retired. Therefore, it is important to examine expected changes in the state's age profile.

The population of Michigan in 2005 was relatively young, with the great majority of the population under 65 (88%), which is precisely the national average. As shown in **Figure 5**, approximately 52 percent of the population in 2005 was between 25 and 64 years old, and 33 percent of the population is under 25. This age distribution will significantly change over the next 25 years:

- The senior population (age 65 and over) will dramatically increase to over 20 percent of the population (1.26 million in 2005 to 2.42 million in 2030);
- The prime working age population 25-64 will shrink from 53 percent (5.60 million in 2015) to 47 percent (5.33 million in 2030);
- The share of population under-25 will slightly decrease from approximately 35 percent (3.53 million in 2005) to 32 percent (3.63 million in 2030);

Figure 5. Share of Statewide Population, by Age Group, 2005-2030

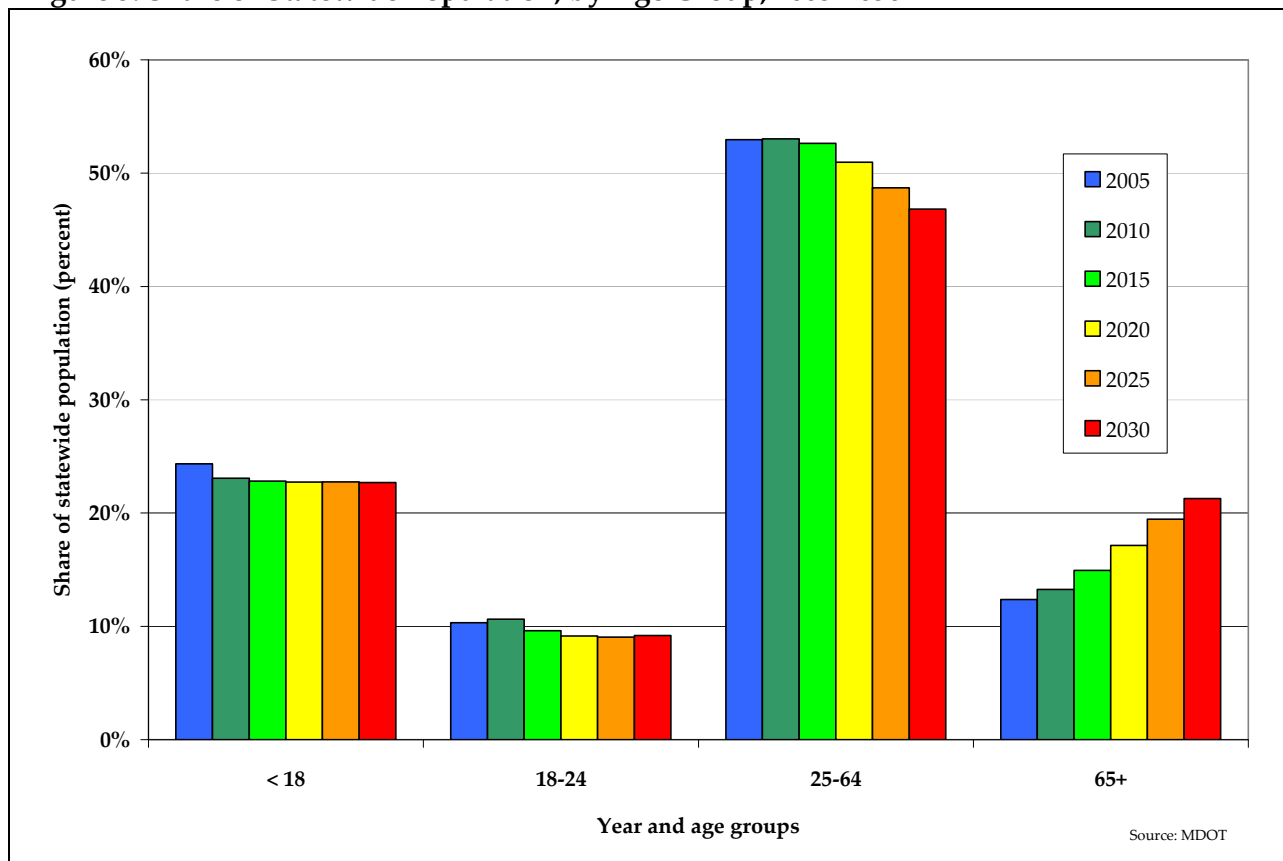


Figure 6 shows the magnitude of the change in population of the four groups over the upcoming 25 year period. The under 18 population group gains 105,000 and the 18-64 group collectively loses 63,000 over the same period. The senior population is where the majority of the population change will occur with a net gain of about 1.16 million seniors over the 25 year period. This is a significant increase.

Figure 6. Change in 2005-2030 Population, by Age Groups

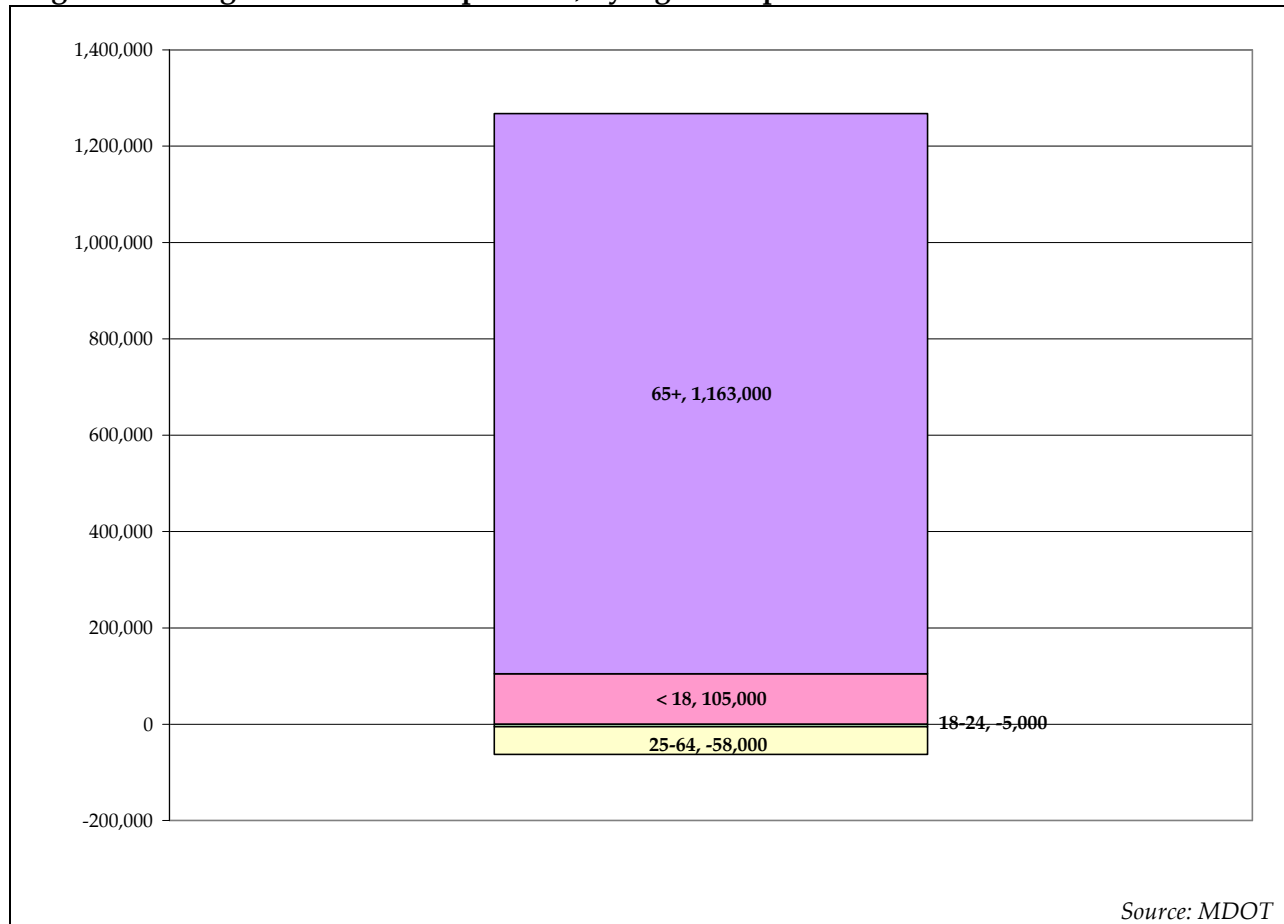


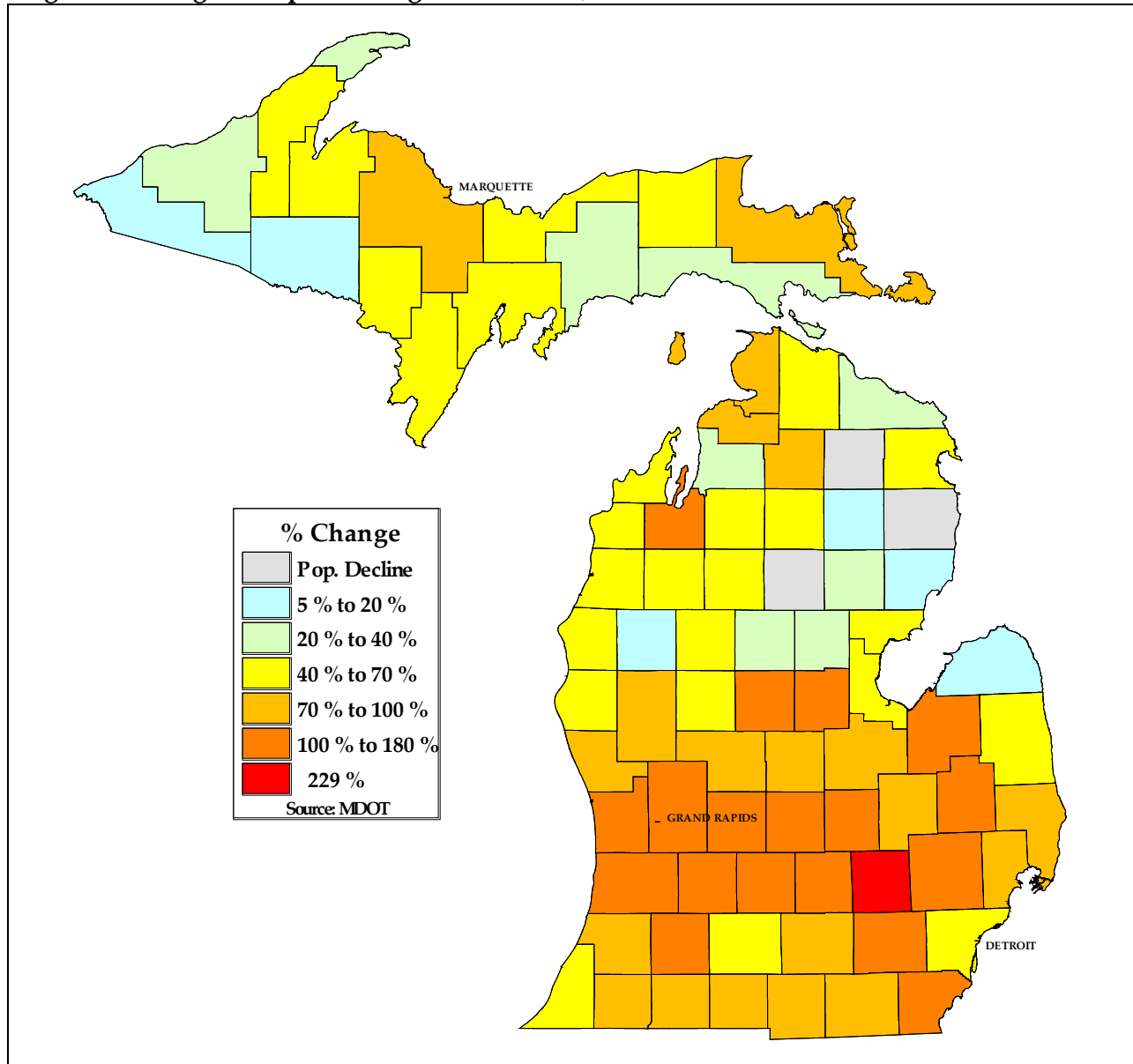
Figure 7 shows that the increase in senior age population will disproportionately rise in some areas of the state. Many of the counties across the entire southern portion of the Lower Peninsula will see an increase in the senior population of more than 100 percent with Livingston County expected to experience more than 200 percent.

While specific statistics about migration and age groups within each of these individual counties are beyond the scope of this report, the findings show certain trends in senior living are particularly relevant in these areas. Specifically, the nature of these areas suggests a large group of the population is expected to be *aging in place*. The senior population increases because retirees and other older citizens continue living in communities where they have lived for many years due to family and other community connections (e.g., health care relationships), more so than being attracted by special amenities.

Cities and towns with growing groups of seniors and retirees often develop Naturally Occurring Retirement Communities or NORCs. These are neighborhoods or areas where neighbors have established long-term residency, and continue residing in the same area into old age. When areas undergo this change, the character of the area changes, requiring a different set of amenities, services, and infrastructure for this population. Issues such as walkability, access to non-work activities, special roadway safety features, transit infrastructure, and land uses with proximity to service and recreational activities increase in importance. Accommodation for the daily commute and access to amenities for young families and children become less of a concern for particular neighborhoods and areas where this occurs. As discussed in the Integration chapter of this report (**Chapter 4**), the aging of the population has linkages to multiple areas of the *MI Transportation Plan*, and is a critical concern for virtually all transportation modes and services addressed in the plan.

The slow overall population growth in the eastern portion of the Lower Peninsula and the western portion of the Upper Peninsula will moderate the increase in the senior population to a slower growth rate, with some counties seeing a stagnant or declining retired population. Even so, the senior population will grow faster than the overall population within these slower-growth counties.

Figure 7. Change in Population aged 65 or older, 2005-2030

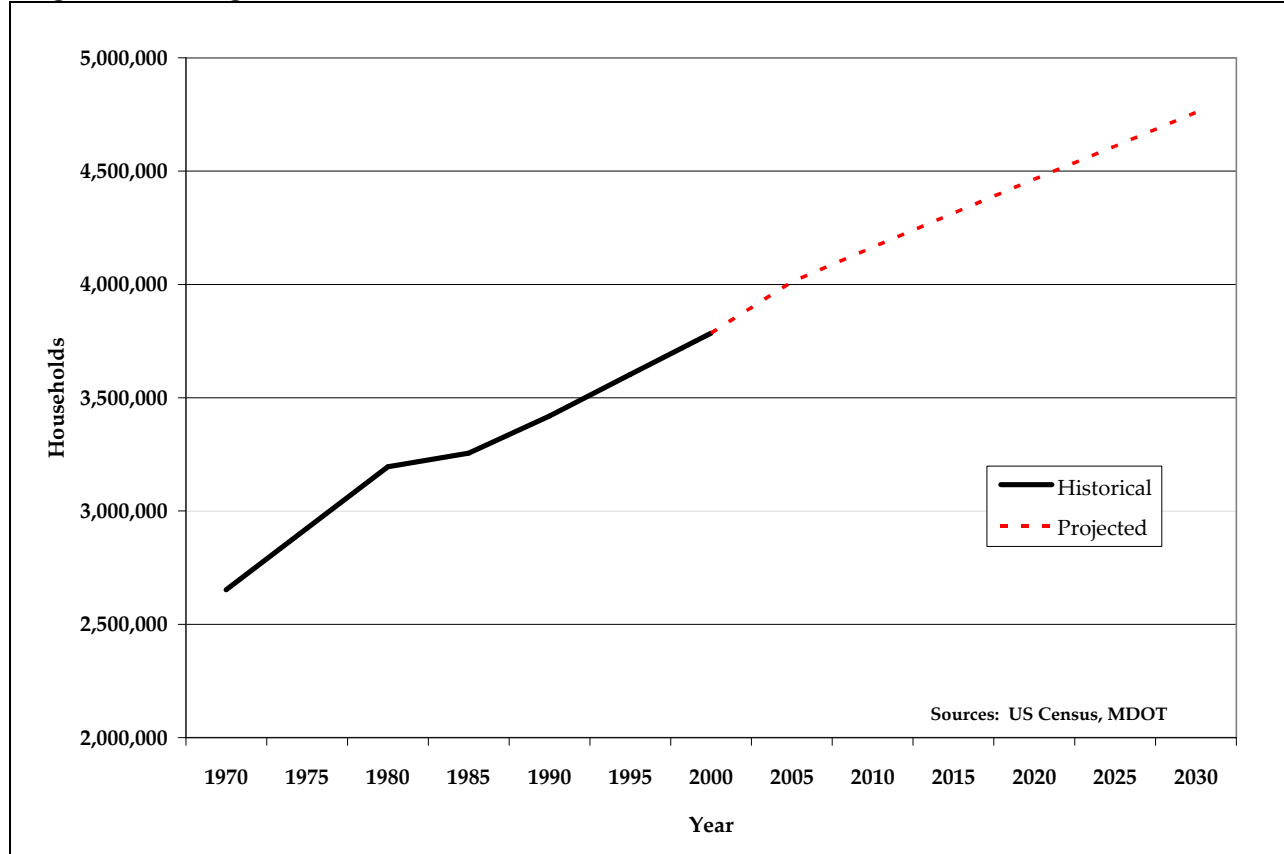


2.2 Households

The household is the primary driver of trip-making, so it is important to examine trends and forecasts of the number of households. Household growth historically has been more aggressive than population growth - almost 1½ times faster. Overall, the number of households is expected to increase about 19 percent over 2005-2030. The fastest growth will occur in single-person households, which are expected to grow 37 percent during this period. For two-person households, the increase is expected to be 28 percent. On the other hand, the number of relatively large households (those with 4+ people) is expected to decline by about 0.5 percent over 2005-2030.

As shown in **Figure 8**, the number of households has historically grown about 0.4 percent to 0.8 percent per year. Households are projected to grow about 0.75 percent per year from 2005 to 2030.

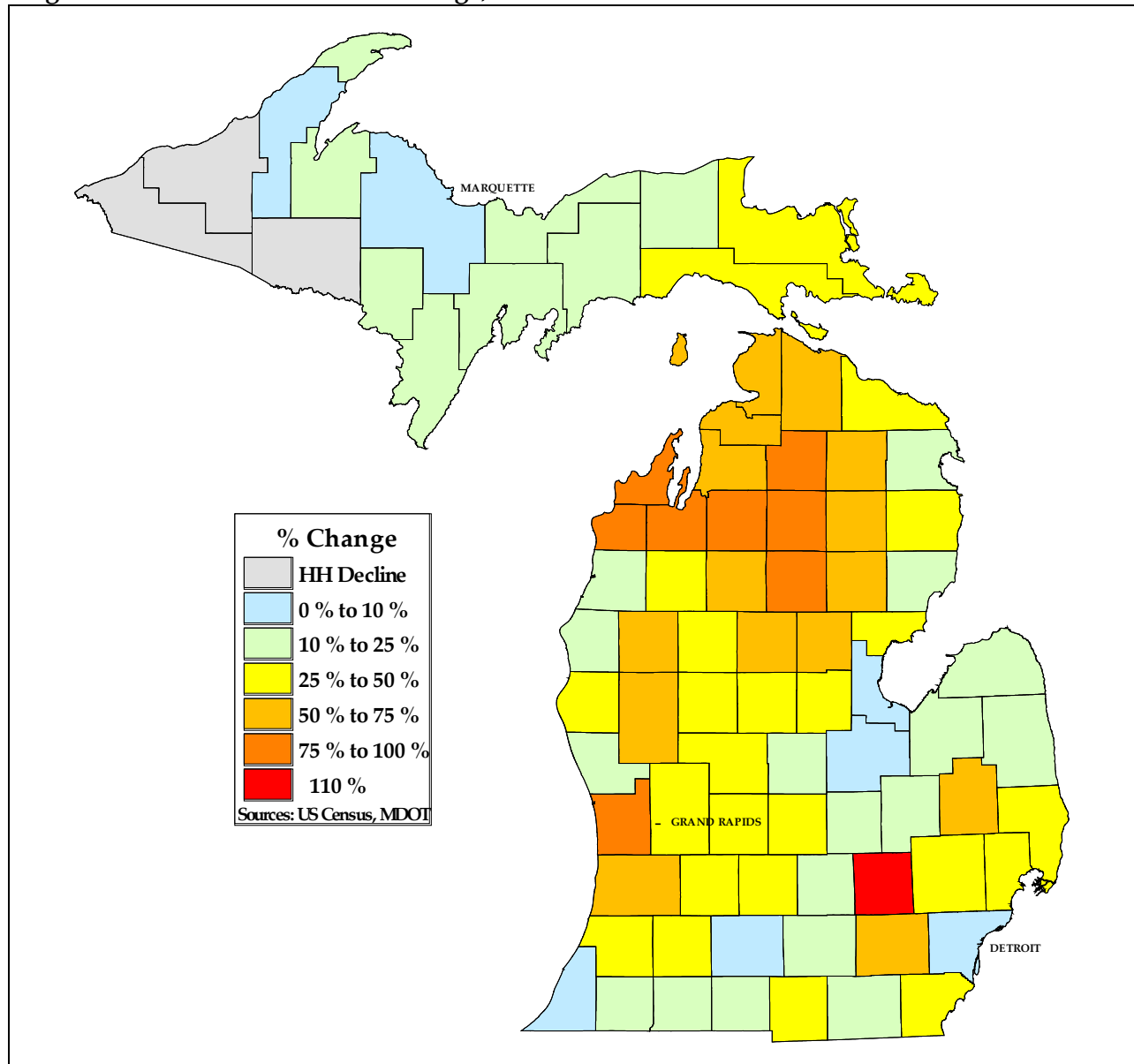
Figure 8. Michigan Households 1970-2030



2.2.1 Households by County

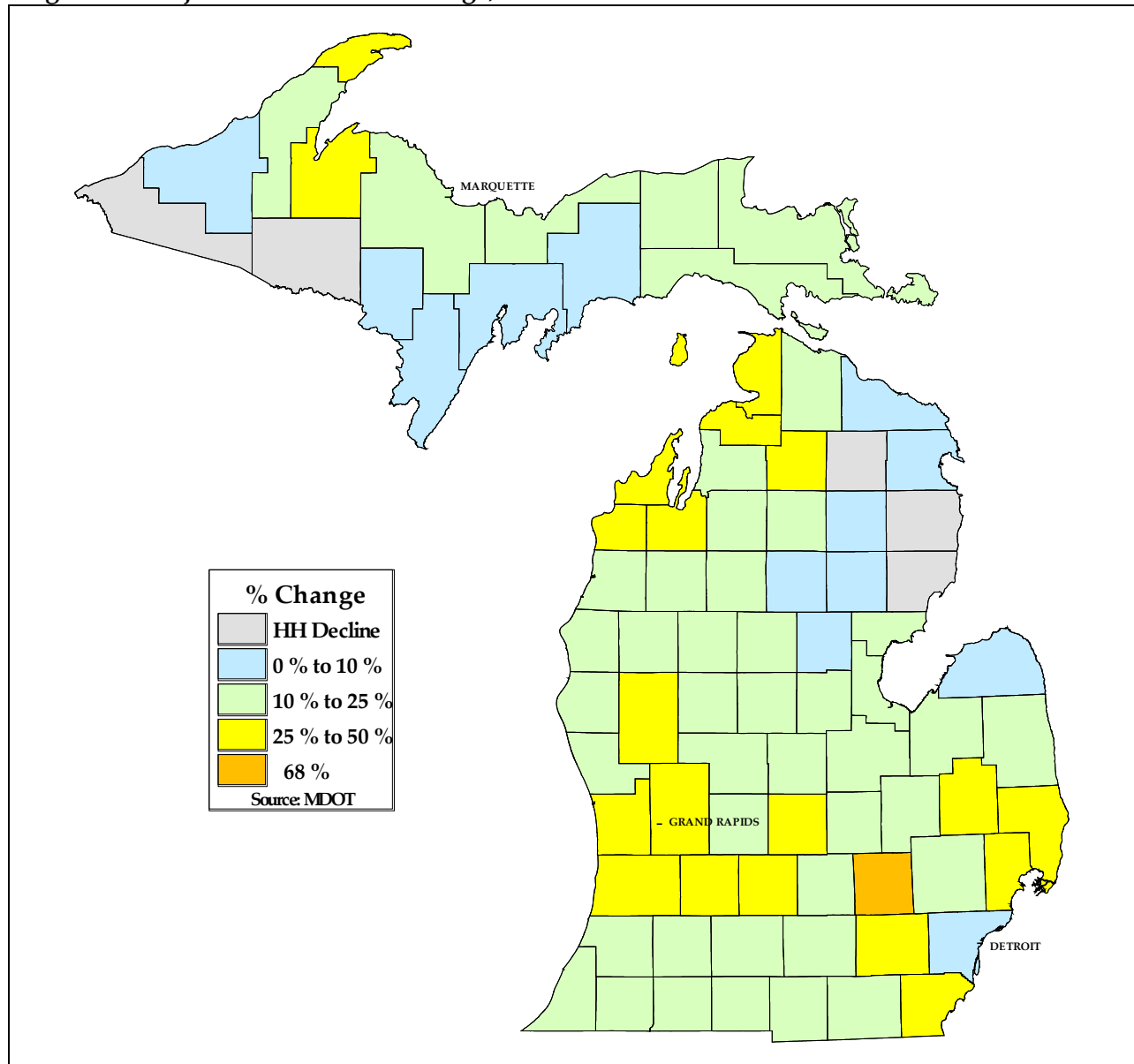
Over the past 25 years, on a percentage basis, households have grown more aggressively in the northwest portion of the Lower Peninsula (retirement relocations, second homes), in the Grand Rapids area, and in some high-growth counties in southeastern Michigan (particularly Livingston County). Households have remained stagnant or declined in the low-growth areas of the northeastern portion of the Lower Peninsula and the western portion of the Upper Peninsula. **Figure 9** illustrates these trends.

Figure 9. Historical Household Change, 1980-2005



Over the long term, individual counties will not encounter such high percentage growth in households as seen in the past 25 years. In general, the same areas of historically high growth will continue to experience higher-than-average percentage growth in households. In addition, Keweenaw and Baraga Counties in the western portion of the Upper Peninsula are projected to experience higher-than-average growth in households, as shown in **Figure 10**.

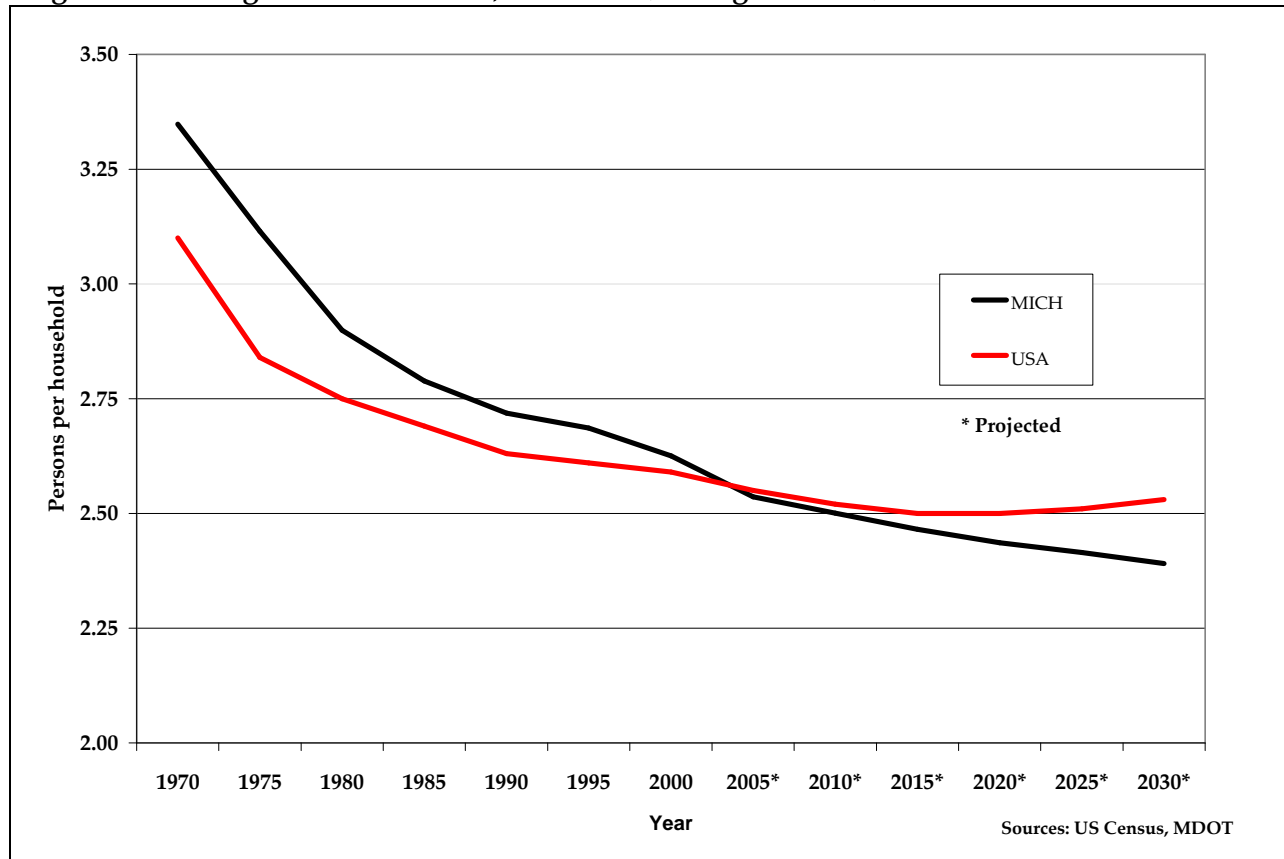
Figure 10. Projected Household Change, 2005-2030



2.2.2 Household Size

Household size, or the average number of people in each household, has declined substantially since 1970, from approximately 3.3 persons per household in 1970 to about 2.6 persons per household. This partially explains the higher rate of household growth relative to the population. Moreover, these changes reflect the aging of the population and that older people tend to live alone or with one other person. Changes in household size are shown in **Figure 11** for Michigan and the US as a whole.

Figure 11. Average Household Size, 1970-2030 (Michigan vs. US)



2.2.3 Vehicle Availability

From 1990 to 2000, the number of zero-vehicle households dropped by over 15 percent, as compared to an increase of about 2.4 percent nationally during the same period, as shown in **Table 1**. It is not clear what accounts for this drop, but it may be a reduction in transit dependency due to an increase in incentives for auto ownership.

With the increase in suburban employment, especially low-wage service jobs, many low-income people find that, to obtain employment, it is necessary to have access to an automobile. Studies show that owning an automobile increases the odds of being employed by 9 percent (*Car Ownership and Welfare to Work*, Paul M. Ong). Moreover, transit access to suburban areas in Michigan is limited and housing costs tend to be higher than in the urban centers. This broad pattern of job inaccessibility reflects the “spatial mismatch” hypothesis from urban geographical literature. This is a research construct used to help account for the spatial separation between suburban, low-wage service employment growth and low-skill labor pools concentrated in urban areas.

Programs such as *Temporary Assistance for Needy Families (TANF)* provide the ability to offer cash of up to \$1,200 towards the purchase of an automobile and \$900 per 12-month period for auto repairs. The increase in the odds of employment coupled with the distance between affordable housing and employment opportunities provide incentive for having an automobile available, which in turn has been encouraged by welfare reform and initiatives by the government.

Table 1. 1990-2000 Change in Vehicle Availability per Household

<i>Vehicles per household</i>	<i>1990-2000 Michigan</i>	<i>1990-2000 United States</i>
0	-15.6%	2.4%
1	12.8%	16.4%
2	15.7%	17.8%
3	11.8%	14.2%
4	7.4%	8.8%
5+	12.0%	14.1%

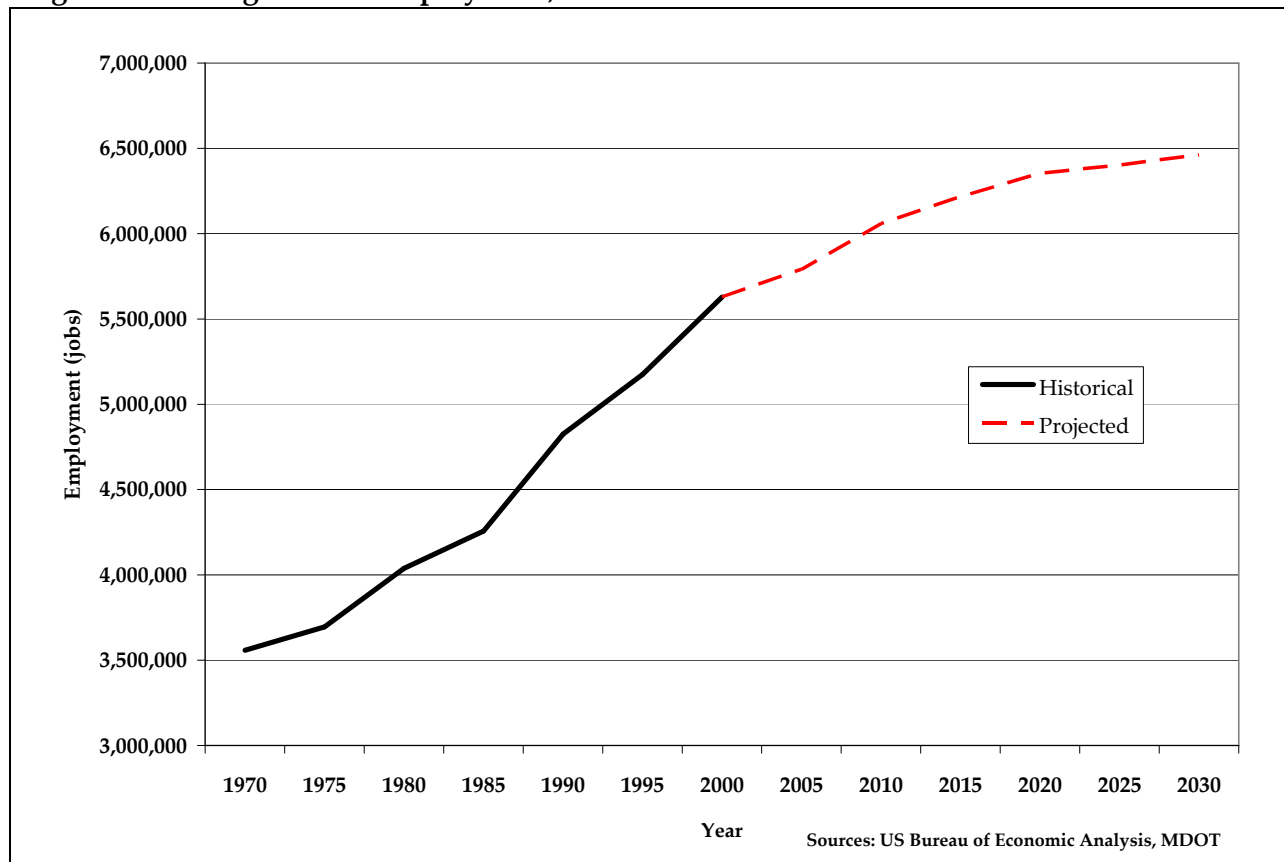
Source: US Census

2.3 Employment

The spatial distribution of employment is another critical element in traditional transportation planning, particularly in the trip generation and trip distribution phases of analysis. Therefore, it is important to examine trends and projections of employment statewide.

As shown in **Figure 12**, employment growth over the past 25 years was at a rapid pace of 0.7 percent per year (from 1980 through 2005). This growth is projected to slow considerably in the next 25 years to a pace of 0.5 percent per year (from 2005 through 2030). These relatively smaller employment gains over the long term largely reflect the anticipated decline in the prime working-age population.

Figure 12. Michigan Total Employment, 1970-2030

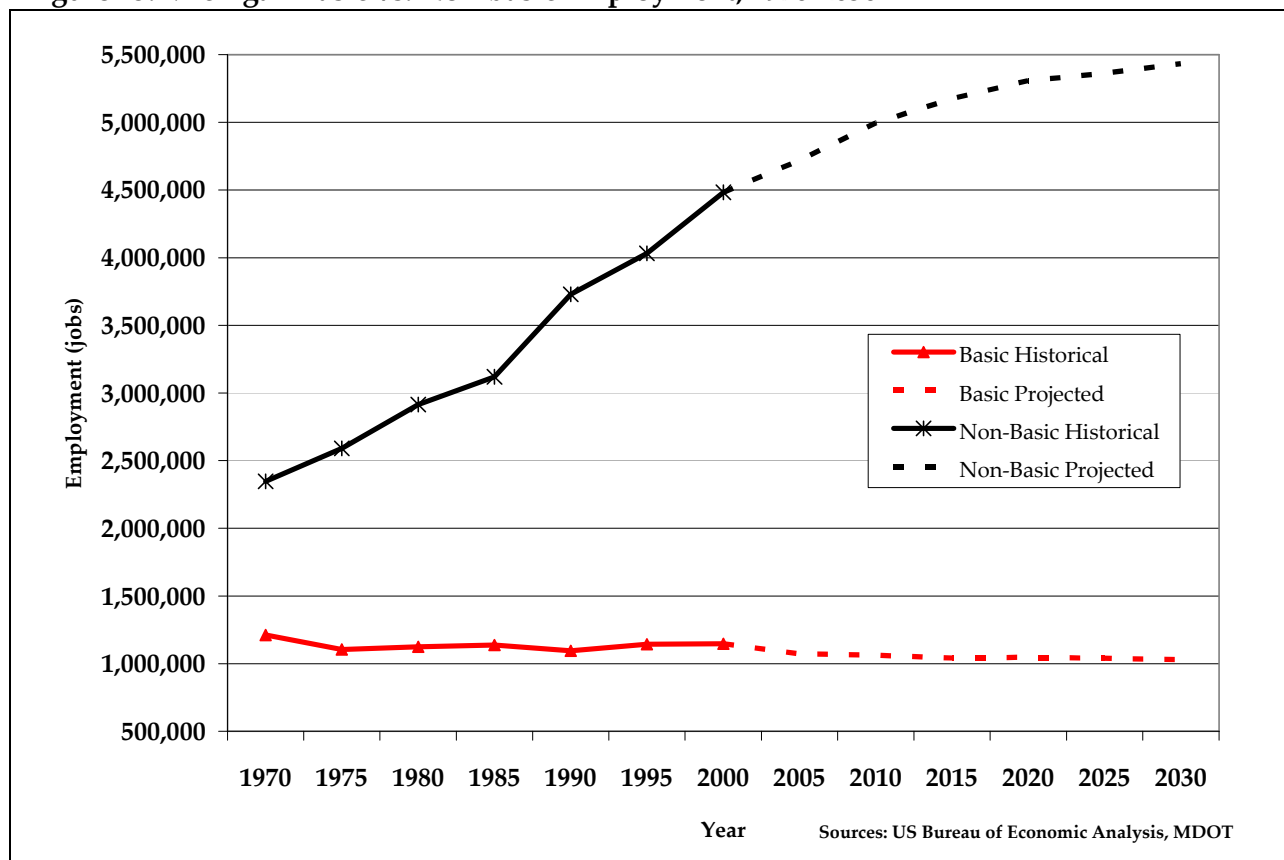


2.3.1 Basic and Non-Basic Employment

One way to examine employment growth is to consider it broadly in terms of basic and non-basic growth. Basic industries include manufacturing, farming/agriculture, mining, forest, and fishing, while non-basic industries include retail, construction, services, government, and wholesale. Basic employment has been slightly declining or flat in the past 25 years and the same trend is projected for the next 25 years.

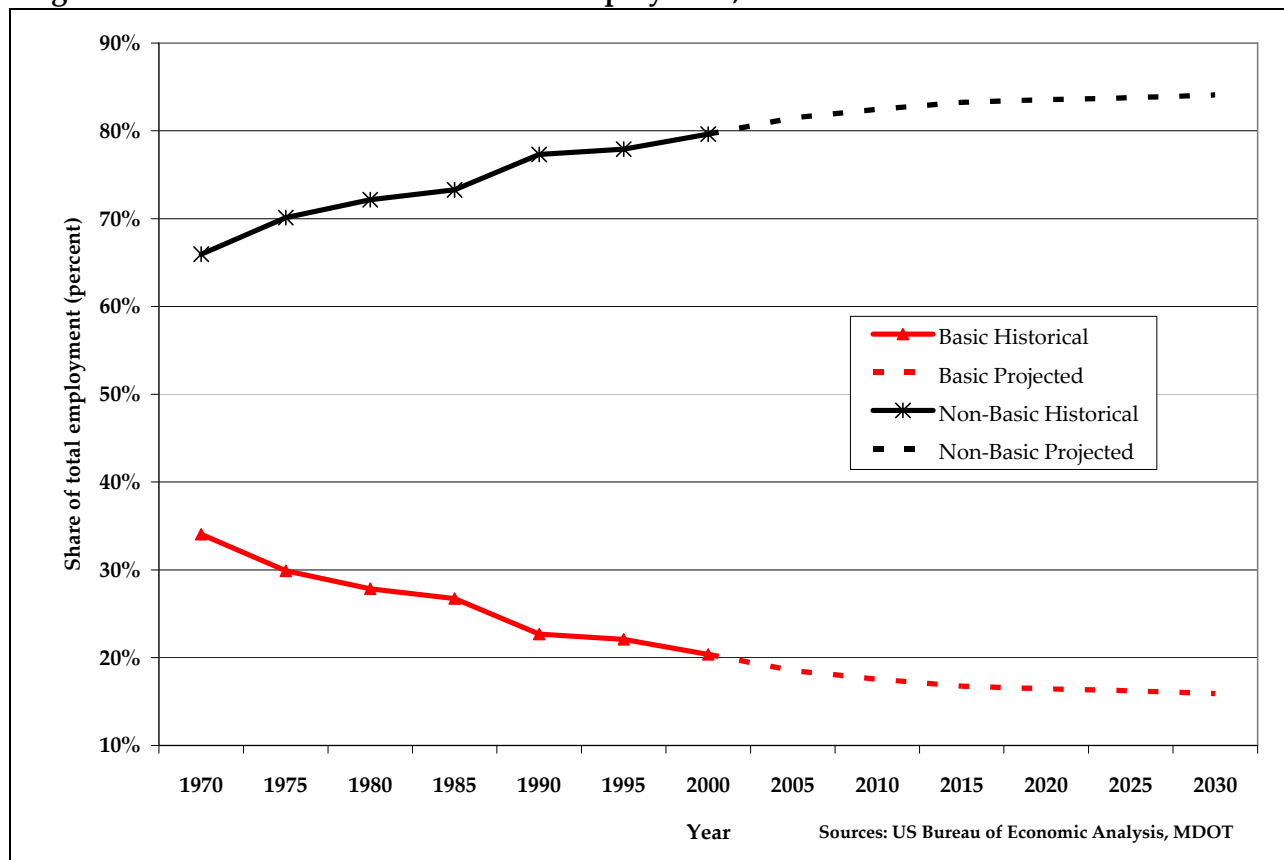
The growth in Michigan's employment has been completely driven by non-basic industries and this will continue over the next 25 years. The non-basic employment has historically grown at about 2 percent per year and is projected to slow to a pace of less than 1 percent per year over the next 25 years. These trends are illustrated in **Figure 13**.

Figure 13. Michigan Basic vs. Non-basic Employment, 1970-2030



The declining basic and increasing non-basic employment will also influence changes in the share of basic vs. non-basic jobs. From 1970 to 2030, the non-basic employment share will increase from approximately 65 percent to 85 percent, as shown in **Figure 14**. The national shift from a manufacturing economy to an increasingly service-oriented economy will accentuate the role of non-basic jobs, markets, and activities in Michigan to the year 2030. The movements of commuters, consumers, and long distance travelers are likely to take on added significance to support this change, while the need to move commodities and products will remain essential to protect the vitality of a proportionally smaller, yet economically critical manufacturing base within Michigan's overall economy. This shift is further addressed both in the Integration chapter of this report and in the *Freight Technical Report* and *Economic Outlook* of the *MI Transportation Plan*.

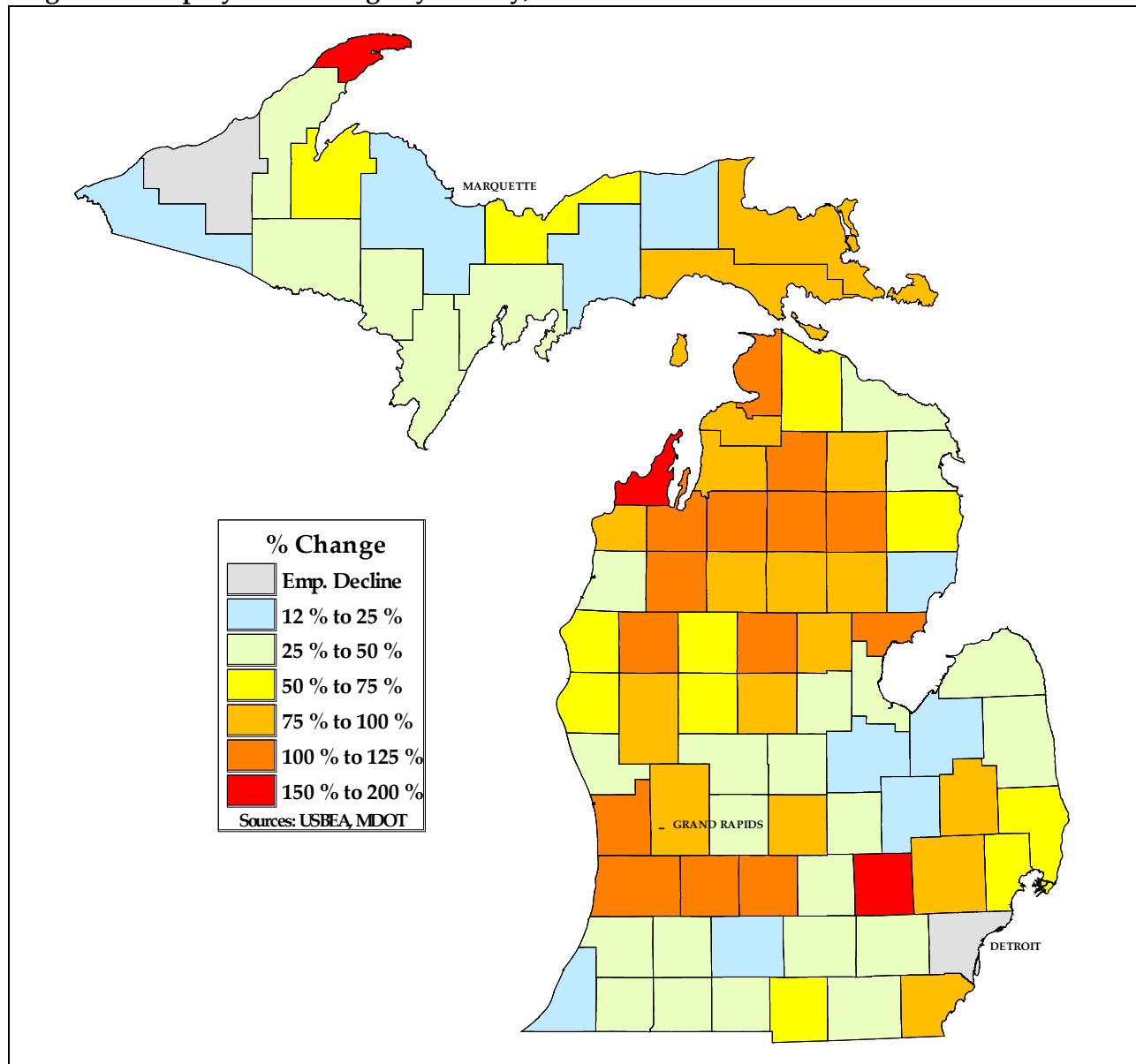
Figure 14. Share of Basic and Non-basic Employment, 1970-2030



2.3.2 Employment by County

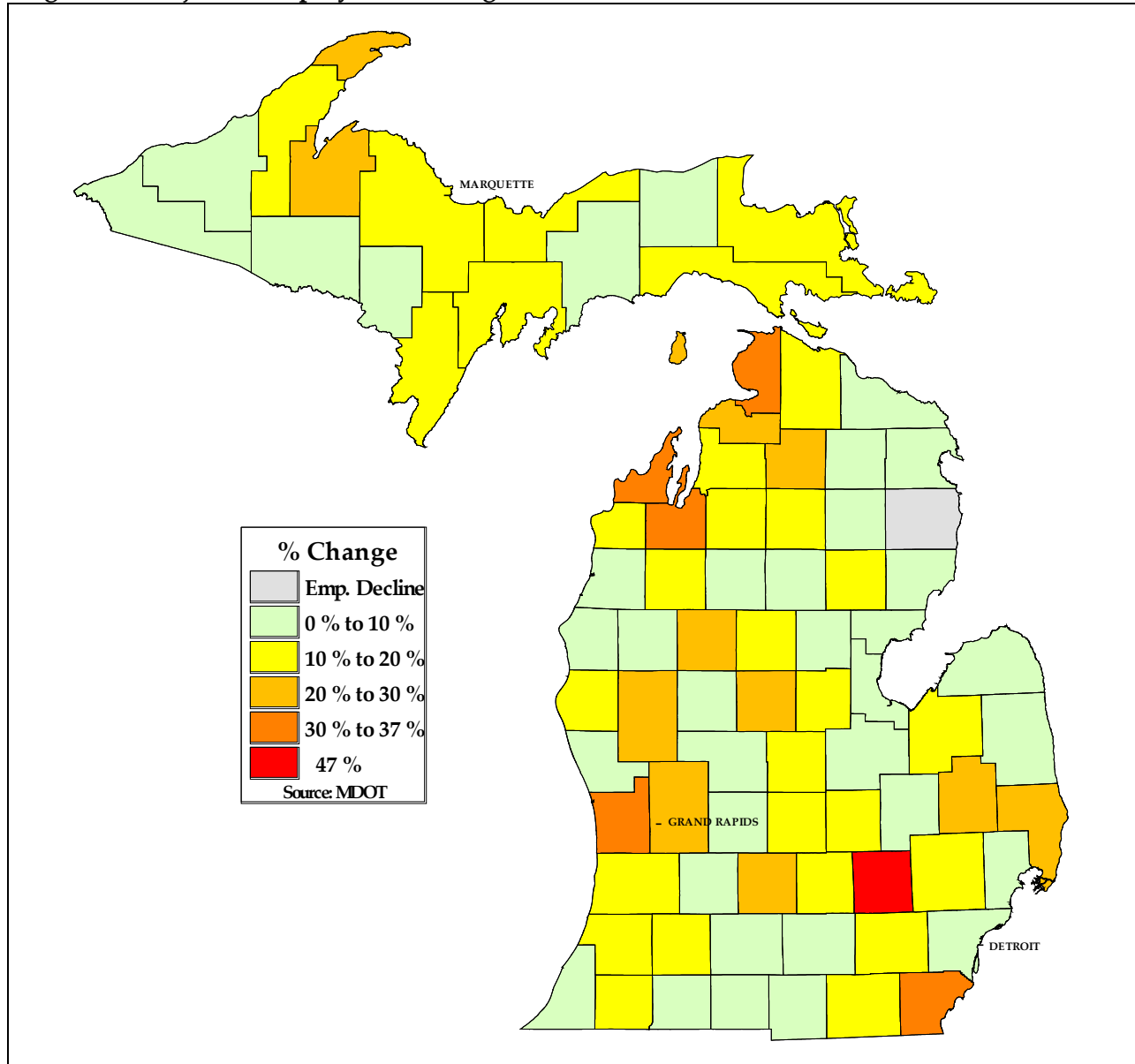
Over the past 25 years, employment growth has been concentrated in certain areas of the state. Metropolitan Detroit, the Grand Rapids area, the northern Lower Peninsula, and the Upper Peninsula's Keweenaw County have experienced aggressive employment growth on a percentage basis, as shown in **Figure 15**.

Figure 15. Employment Change by County, 1980-2005



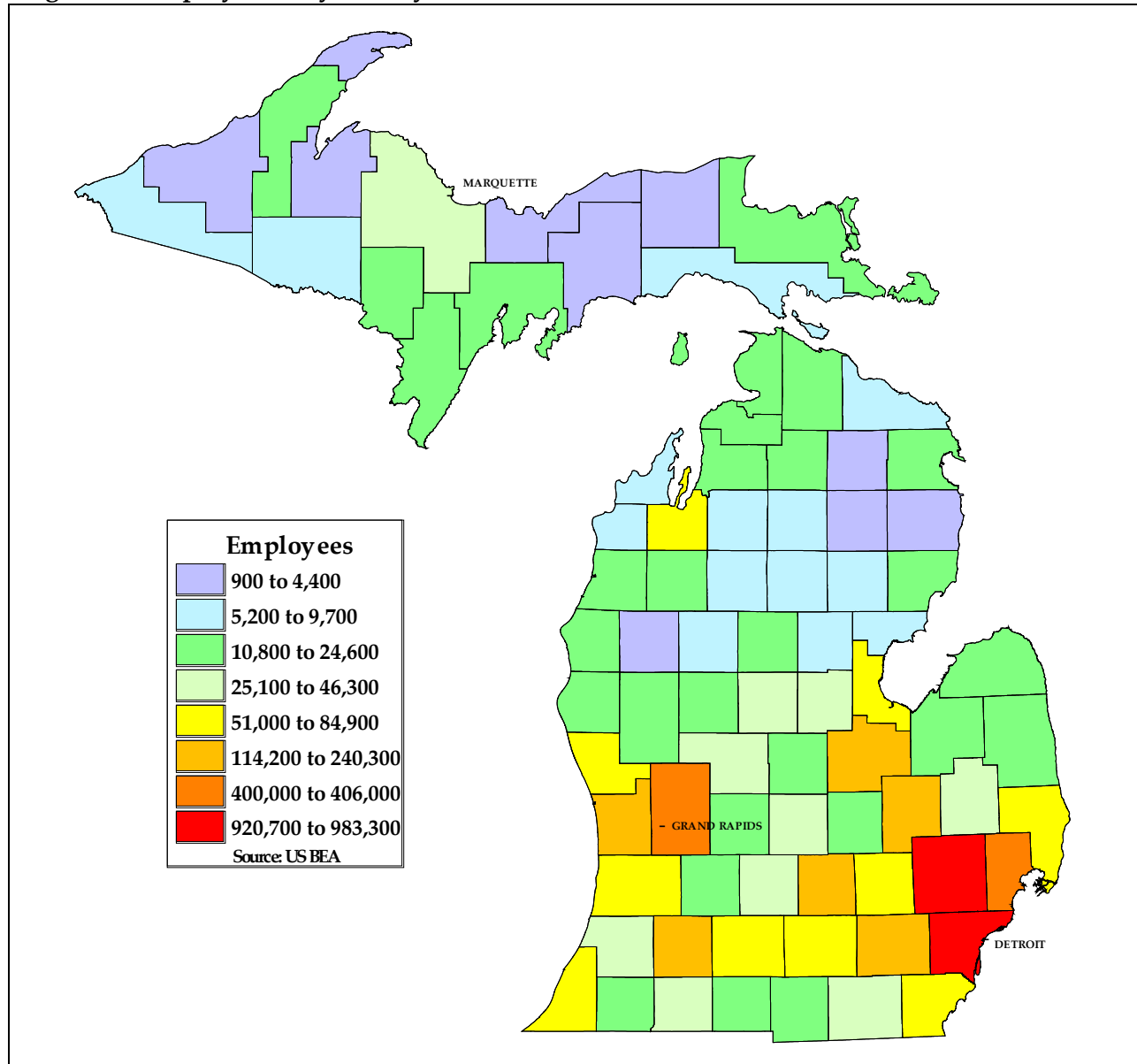
The areas of historically high employment growth will generally continue to experience higher than average employment growth in the next 25 years, except that the higher growth in the Detroit area will be experienced by more counties further out from the central city. This suggests that the past pattern of suburbanization and exurbanization of employment will continue for many areas of the state. These trends are illustrated in **Figure 16**.

Figure 16. Projected Employment Change, 2005-2030



Similar to Michigan's population concentrations, the great majority of the jobs are in the southern portion of the Lower Peninsula, primarily in the Flint, Saginaw, Detroit, Grand Rapids, Lansing, Ann Arbor, and Kalamazoo metropolitan areas. The number of employees in each county in 2003 is illustrated in **Figure 17**.

Figure 17. Employment by County 2003



2.3.3 Employment by Sector

The composition of employment in Michigan has changed and will continue to change dramatically. In 1970, manufacturing was the dominant sector, followed by services and retail. The manufacturing share has dropped from over 30 percent in 1970 to less than 20 percent in 2000, and will decline to just below 15 percent by 2030. The services sector, on the other hand, has increased from just above 15 percent in 1970 to greater than 30 percent in 2000 and will increase to almost 40 percent in 2030. The wholesale, retail, and farming sectors have remained relatively constant over the historical period, each with a slight projected decline over time. These trends are illustrated in **Figure 18**.

Figure 18. Share of Employees in five Key Sectors, 1970-2030

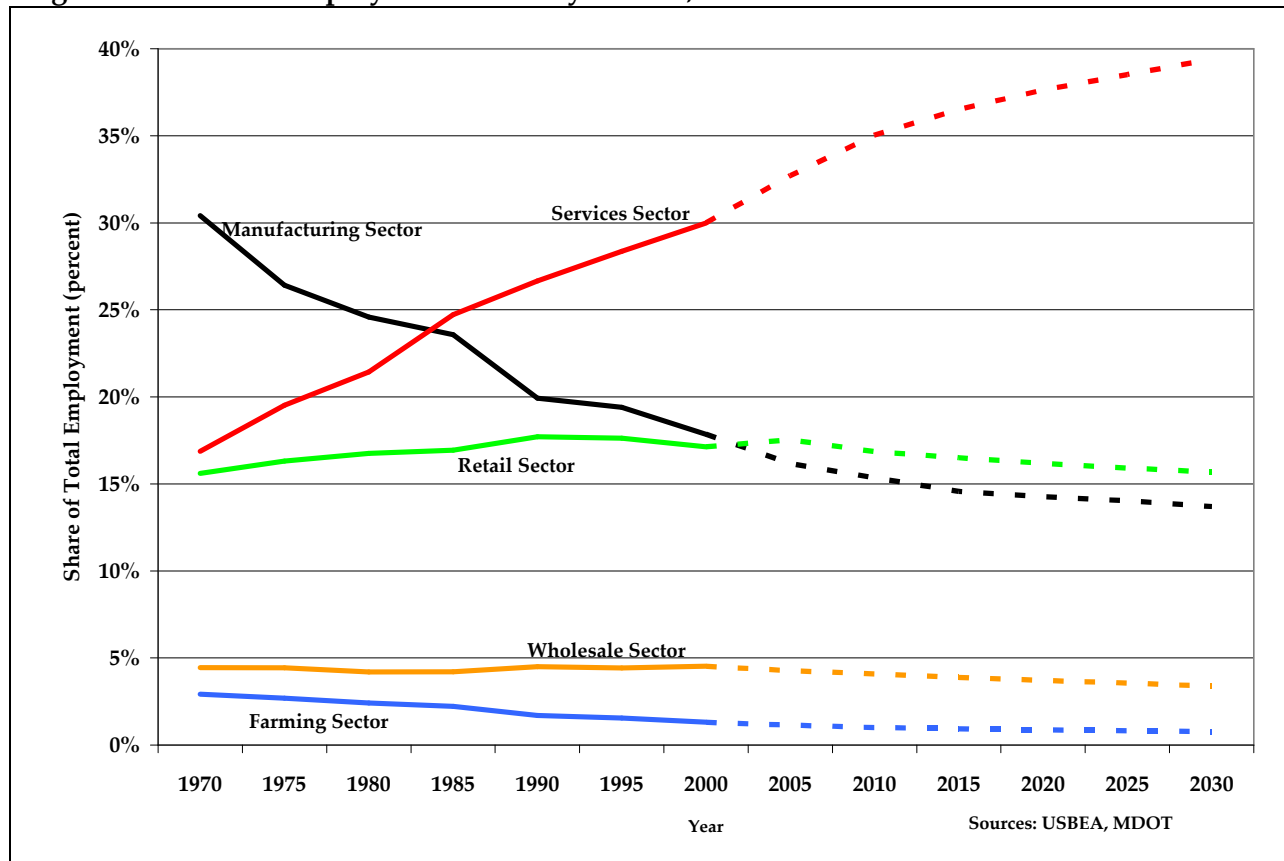


Table 2 provides the number of jobs and percent of total jobs by detailed employment sectors in the state during 2003. The table shows that, while the trend illustrated in **Figure 18** indicates a growing service economy, manufacturing remains a critical element of Michigan's industry mix. Furthermore, the manufacturing sector in **Table 2** includes a mix of commodities and manufacturing sub-sectors which are likely to be shifting in the future, with some elements of Michigan's manufacturing base increasing and others decreasing. The *Economic Outlook* and *Freight Technical Reports* and associated economic impact analyses of the *MI Transportation Plan* will look at manufacturing commodities and service activities in greater detail.

Table 2. Profile of 2003 Total Michigan Employment, by Sector

<i>Detailed sector</i>	<i>Number of jobs in sector</i>	<i>Percent of total jobs</i>
Manufacturing	738,999	13.6%
Government	695,682	12.8%
Retail Trade	628,557	11.5%
Health Care and Social Assistance	579,934	10.7%
Accommodation and Food Services	355,594	6.5%
Professional and Technical Services	354,306	6.5%
Administrative and Waste Services	330,422	6.1%
Other Services (except Public Admin)	296,762	5.5%
Construction	287,003	5.3%
Finance and Insurance	217,999	4.0%
Wholesale Trade	187,029	3.4%
Real Estate, Rental, and Leasing	176,727	3.2%
Transportation and Warehousing	130,131	2.4%
Arts, Entertainment, and Recreation	103,848	1.9%
Educational Services	82,853	1.5%
Information	79,547	1.5%
Farming	78,235	1.4%
Management of Companies and Enterprises	71,016	1.3%
Utilities	20,836	0.4%
Forestry, Fishing, and Related	16,845	0.3%
Mining	11,573	0.2%
Total	5,443,898	100.0%

Source: USBEA Regional Economic Information System, Table CA25 (NAICS).

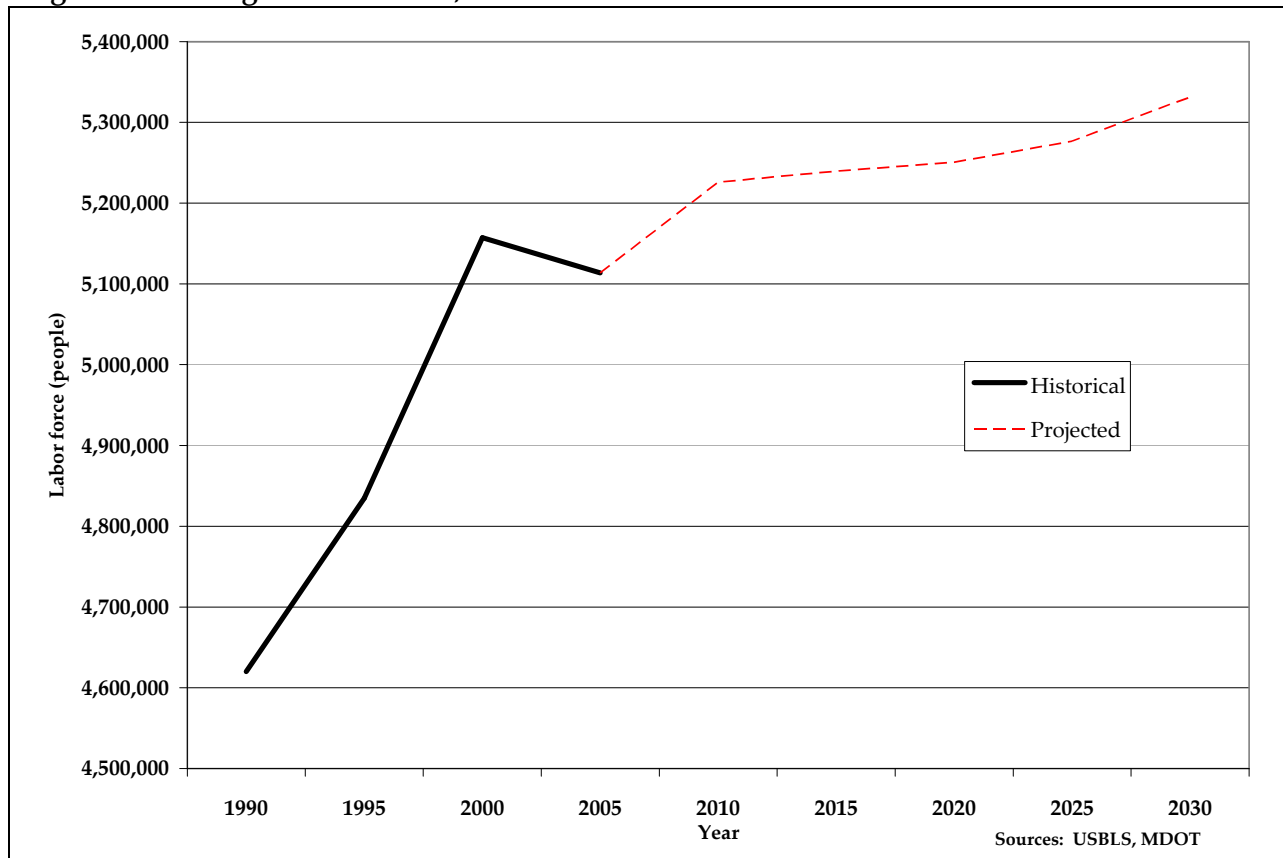
2.3.4 Labor Force

The labor force will tighten over the next 25 years as compared to the labor force growth of the past 15 years. The labor force has grown by approximately 500,000 people in the past 15 years, yet will only increase by approximately 200,000 over the next 25 years, as shown in **Figure 19**. The state experienced a slight decline in the labor force in the past five years (2000-2005).

Tightening of the labor force over the forecast period is largely due to a decline in the prime working-age population and declining labor force participation rates. Regarding the former, the age profile presented in **Section 2.1.2 Population by Age Group**, indicated the expected decline in the shares of population under the age of 25. Relative to the Michigan labor force, this is the age group from which employers recruit entry-level workers. Moreover, the decline in prime working-age population would be even greater and the job gains would be even smaller if Michigan did not shift, as we expect, from its historical situation of net out-migration to net in-migration.

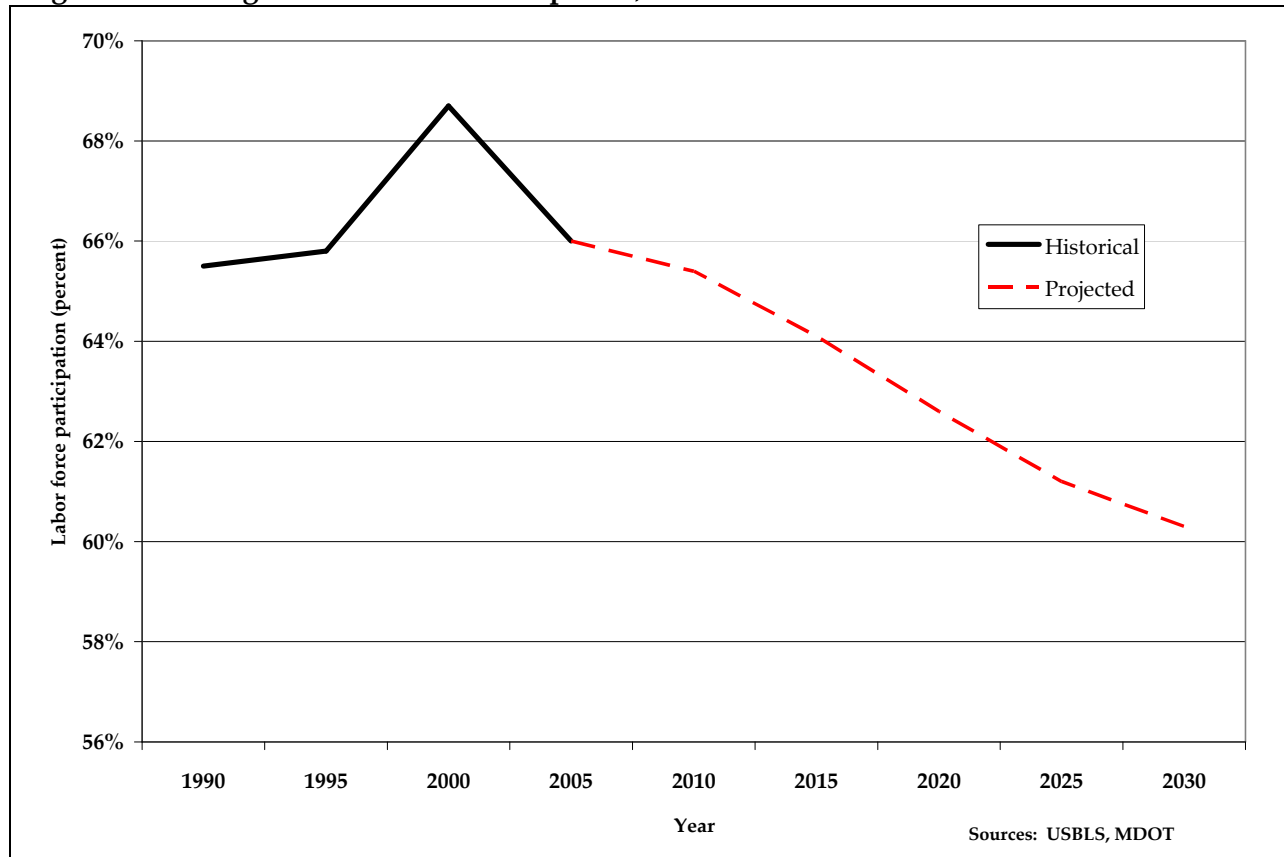
*Please note that **labor force** as used in this report, is defined as the collective group of persons 16 years of age or older, both civilian and non-civilian, who are classified as either being employed or unemployed and actively seeking a job.*

Figure 19. Michigan Labor Force, 1990-2030



During the past 15 years, the labor force represented about 65 percent to 68 percent of the total population. The labor force participation rate in the next 25 years will decline from 66 percent in 2005 to just above 60 percent in 2030. However, labor force participation rates for those aged 55 or older are expected to grow slightly over the long term. Therefore, the so-called Baby Boom generation is likely to remain active in the workforce more so than previous generations. **Figure 20** shows the overall decline in the projected labor force participation rate over the next 25 years.

Figure 20. Michigan Labor Force Participation, 1990-2030



2.3.5 Migration

The state lost over one-half million people to net migration during the 1980s, gained back 60,000 in the 1990s, and lost almost another 100,000 in the first half of the present decade. The negative net migration is expected to shift to positive net migration in the 2010s and 2020s. As a forecast response to potential labor shortages, the international in-migration is offsetting the out-migration of the work force-age population, as shown in **Table 3**.

Table 3. Domestic and International Migration: Michigan 1980-2030

	<i>1980s</i>	<i>1990s</i>	<i>2000s</i>	<i>2010s</i>	<i>2020s</i>
International Migration	100,700	113,600	170,600	186,000	195,400
Domestic Migration (aged 65+)	-13,400	-20,400	-4,500	-4,400	-4,800
Domestic Migration (aged < 65)	-658,500	-33,900	-256,700	-154,900	-33,400
<i>Total Migration</i>	<i>-571,200</i>	<i>59,300</i>	<i>-90,600</i>	<i>26,700</i>	<i>224,000</i>

Source: MDOT Planning 2003

2.4 Income

It is useful to examine changes in personal income, considering that income is a commonly used indicator of the well-being of an economy as well as having a direct relationship with travel demand. Personal income may be defined as that income derived from wages and salaries, asset income (e.g., dividends, interest, rent), and transfer payments such as Social Security.

Over the past 15 years, personal income per capita kept pace with the national trend. In the past few years, however, Michigan's income per capita has slightly lagged behind the national average, as shown in **Figure 21**.

Figure 21. Personal Income per Capita 1990-2004

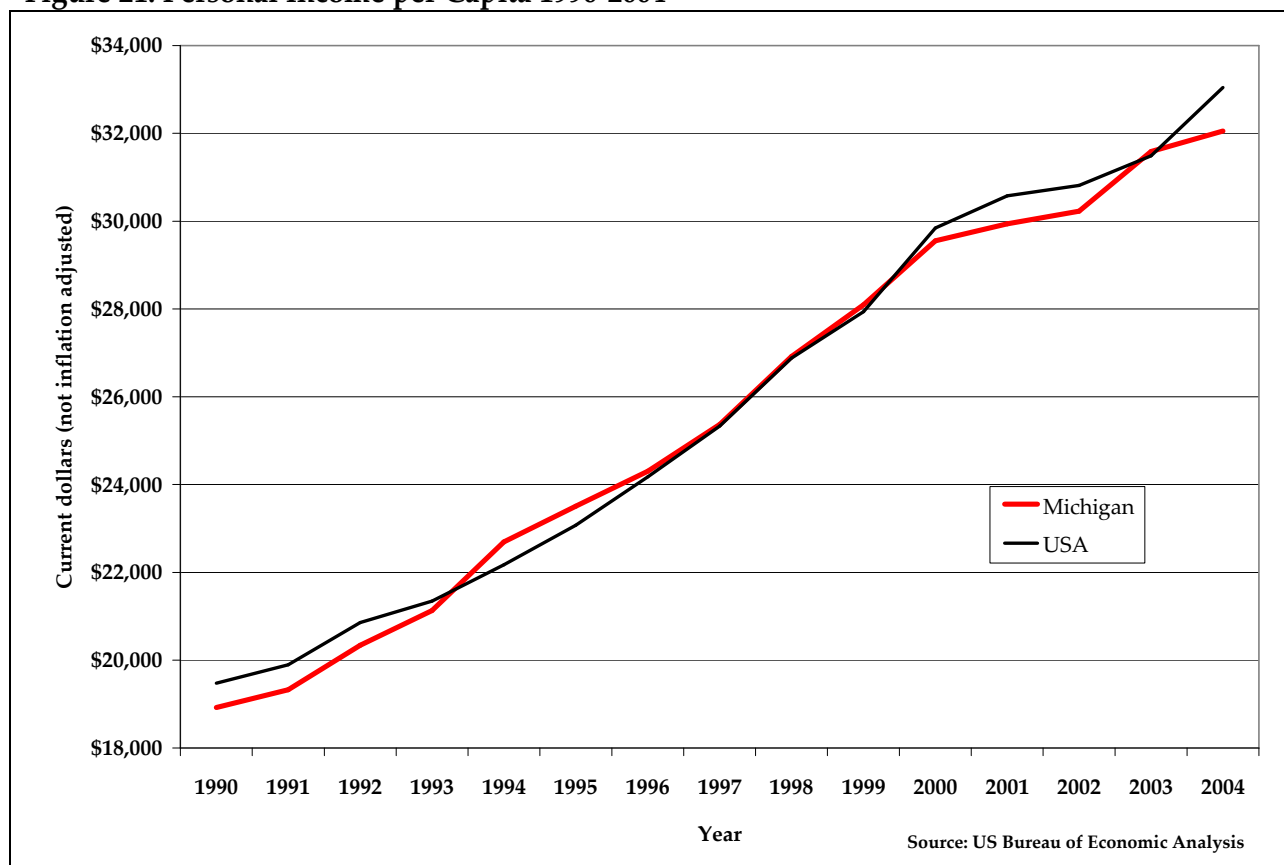
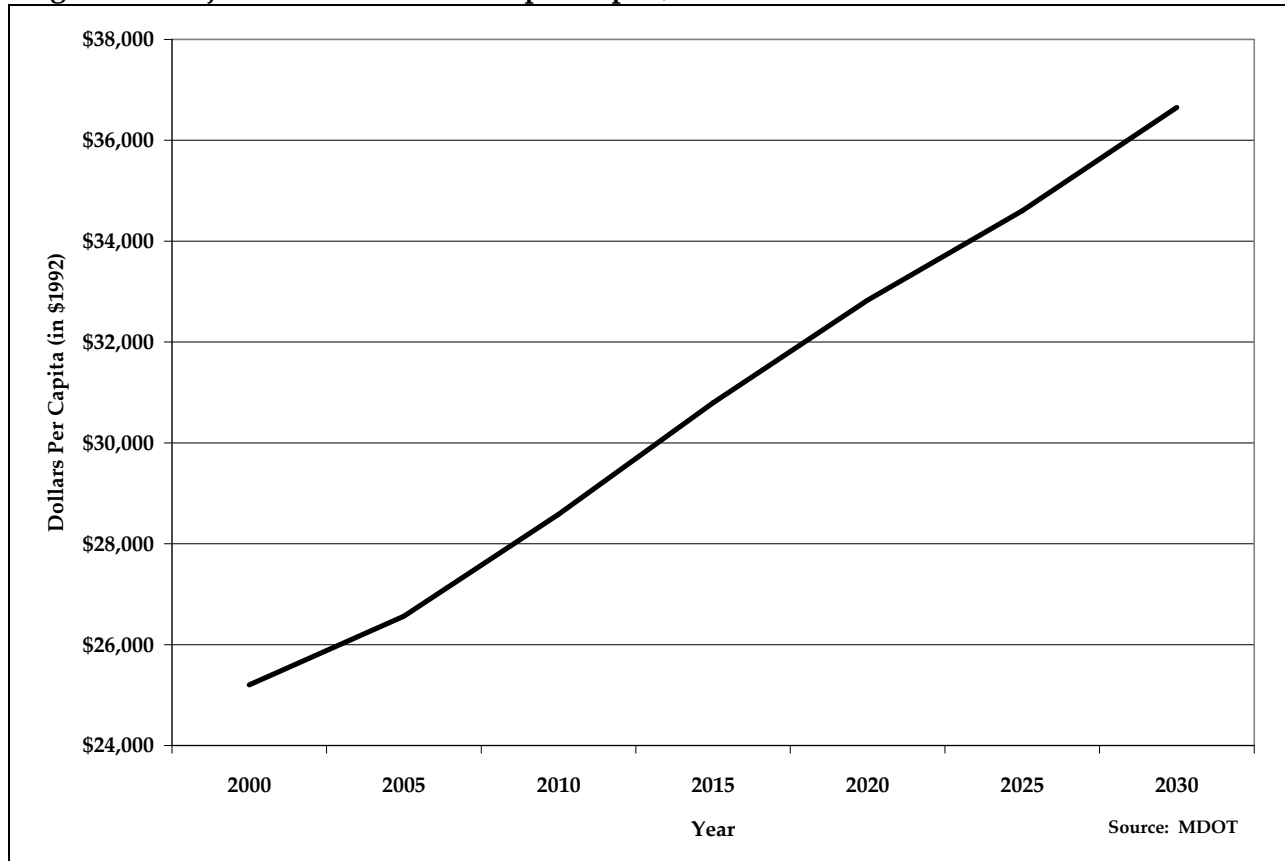


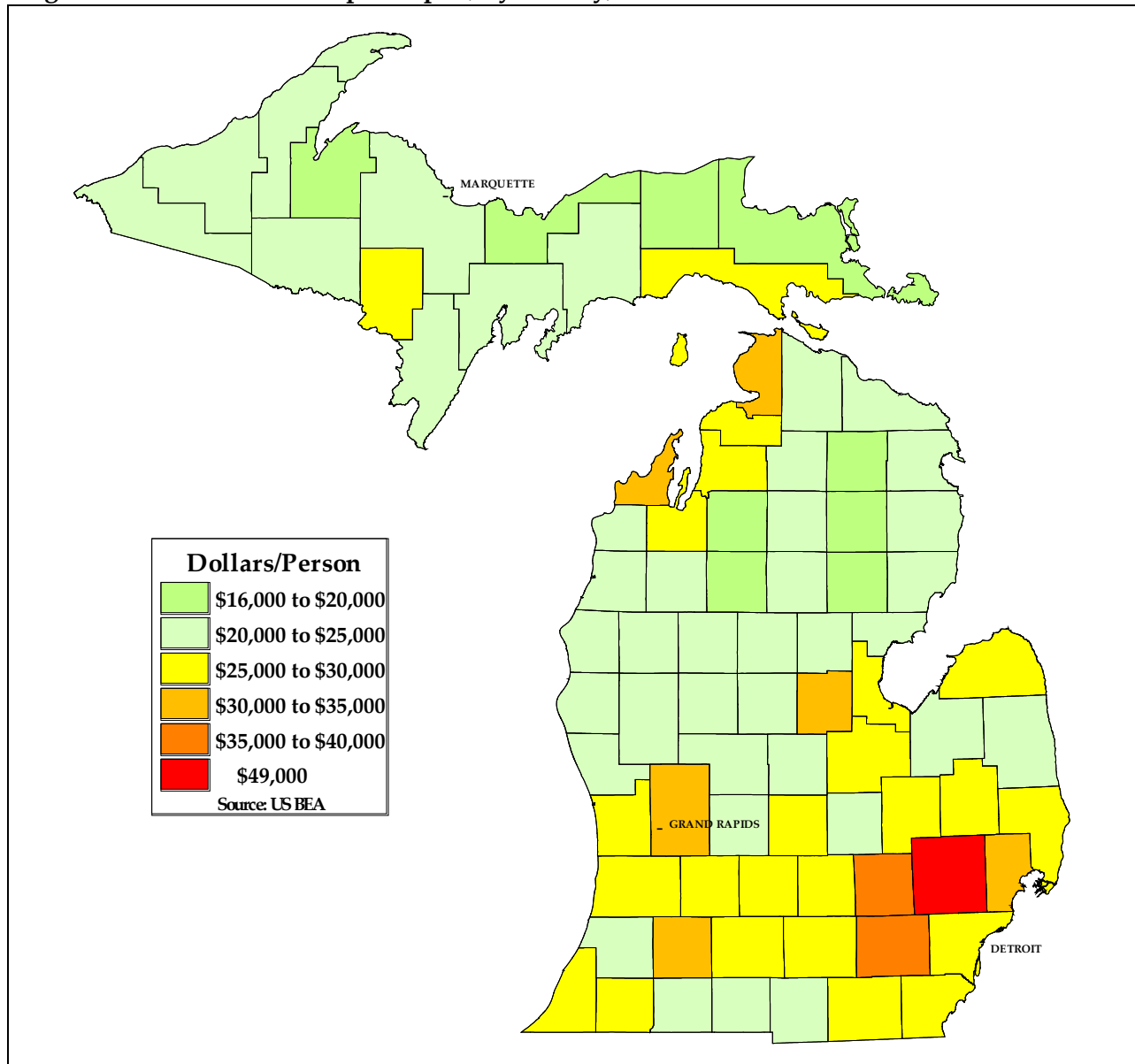
Figure 22 shows a projected consistent increase in personal income per capita over the next 25 years. With the moderating employment rates and the decrease in the labor force participation rates, this is a logical trend.

Figure 22. Projected Personal Income per Capita, 2005-2030



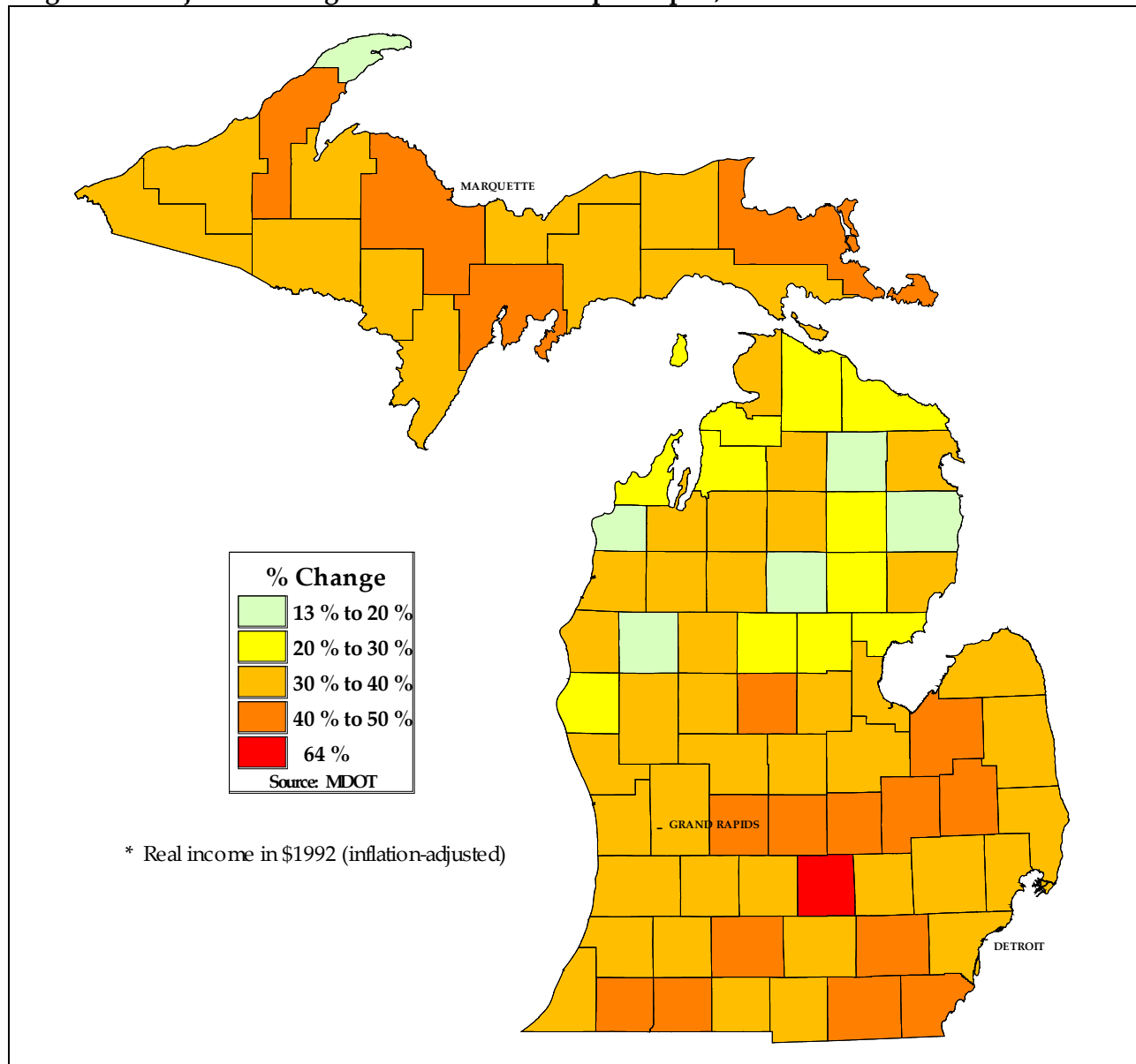
The metropolitan areas with the highest employment and population concentrations also generally had the highest personal income per capita, for example suburban Detroit and Grand Rapids, and the more rural retirement communities located in northwestern lower Michigan. The majority of the Upper Peninsula and most of the northern portion of the Lower Peninsula had a much lower personal income per capita than the metropolitan areas of the southern one-third of the state, as shown in **Figure 23**.

Figure 23. Personal Income per Capita, by County, 2003 (2003 Dollars)



The growth in real personal income per capita is projected to be relatively consistent throughout the state, with pockets of high growth in the southern third of the Lower Peninsula and portions of the Upper Peninsula, as shown in **Figure 24**.

Figure 24. Projected Change in Personal Income per Capita, 2005-2030



2.5 Transport Implications of Demographics

The demographics and socioeconomic characteristics of the population can have a substantial effect on the changes in transportation behaviors of the residents. Therefore, it is very important that these socioeconomic changes are well understood as policies are developed for the *MI Transportation Plan*. The demographics in Michigan will be changing in the next 25 years as indicated by these broad level highlights:

- population growth will continue;
- the percentage of the population who are elderly will increase significantly;
- average household size will continue to decrease; and
- growth in the number of households will continue.

The following sub-sections discuss more detailed implications for transportation in Michigan based on the foregoing analyses for population, households, employment, and income.

2.5.1 Changes in Population and Groups

It is important to note that, while Michigan's population is expected to grow at a slower rate to the year 2030, the population will still increase in the time horizon of the *MI Transportation Plan*. Increases in population growth will continue to place greater demands on a relatively static transport system. These demands may lead to increased congestion in urban and suburban regions.

Geographic shifts in population within the state may result in localized population growth levels increasing at levels beyond the overall statewide rate of growth. Continued population decentralization (especially in areas under-served or not served by transit) increases reliance on private auto use and influences average trip lengths. This will continue to place greater stress on suburban arterials in the form of more congestion. Resulting longer trip lengths may extend peak commuting periods.

While overall population growth is expected to slow, major life cycle and demographic shifts are anticipated by the year 2030. As described in this technical report, the senior and retired age group within the overall population is expected to increase significantly, with associated changes in transportation demand and needs. The nature of this change is described in **Section 2.1.2** and the change is likely to have implications across all modes of transportation. **Section 4.1.1** of this technical report explores the linkages of this change with larger issues in the *MI Transportation Plan* and findings of other technical reports regarding the needs of this growing travel segment.

2.5.1.1 Senior Population

The dominant socioeconomic change in Michigan is expected to be the increase in aging and retired populations. Consequently, transport to health, recreational, and other activities will increase in importance as this segment transitions from the daily commute to different travel patterns characteristic of retirees and older travelers. **Figure 4** demonstrates that this

change will affect urban and non-urban areas alike, but will be concentrated in the south central counties of the Lower Peninsula. The needs of older travelers and retirees are addressed in other technical reports relative to special safety needs and the need for other modal alternatives for aging travelers. This change in Michigan's travel segments is illustrated in the current report more explicitly than in others.

Some of the effects of a changing age profile are likely to include:

1. Overall, an aging population (especially in areas with concentrated increases in senior population) may require changes in road design, traffic engineering, and road signage, and possible changes in driver re-testing at certain ages.
2. Bicycle and pedestrian access to activities for aging population segments.
3. Transit and specialized transportation services to ensure mobility for aged travelers, especially those age groups that become unwilling or unable to drive.
4. Senior population will remain in the labor force longer, thereby contributing to a greater midday peak, increased VMT on the system, and possibly increased congestion.
5. Increasing need for senior-related transportation services (e.g., medical, personal needs) particularly during off-peak periods. This will become especially important as elderly drivers discontinue driving.
6. Aging population concentrations in urban and suburban areas will likely result in the growth of senior adult living communities and assisted living centers for seniors. This may require the state (or other authority) to consider developer incentives to make these types of facilities transit-friendly.
7. The decline in the working-age population may translate to relatively fewer trips in the traditional commuting peak periods.
8. Continued stagnation/decline in younger age groups will affect the number of new licensed drivers in Michigan.

2.5.1.2 Immigrant Population

The concentration of foreign-born populations (and to some degree, non-English speaking populations) is illustrated in the Environmental Justice chapter (**Figures 25-27**) of this report. National trends (as indicated in the US Census) indicate the increasing role of this segment in both workforce and travel demand. Moreover, foreign-born populations create distinctive cultural, economic, and social implications regarding transportation system needs and demands.

For instance, expected increases in international migration will require the state to communicate with more diverse segments of the population. Road signage, travel advisories, and other transportation system information may need to be designed using multiple languages. Transportation providers may need to revise customer service staffing policies by hiring workers with multilingual skills to better serve these increasing

immigrant segments of the population. These implications are further explored in the Environmental Justice and Integration chapters of this report (**Sections 3.2 and 4.1.3**).

Figure 25 and **Figure 26** indicate areas where Asian and Hispanic populations are concentrated. In addition to those populations, the national trend of growing foreign-born and non-English speaking populations is an important consideration for an integrated transportation system. The increasing diversity of transportation markets has implications for the accessibility, awareness, safety, and overall performance of the system across modes.

2.5.2 Changes in Households

Because most trips are generated at the household level, it is likely that expected increases in the number of households will increase both the number of trips on the system and overall vehicle-miles traveled (VMT) in Michigan. The *Travel Characteristics Technical Report* further explores trips generated at the household level, and patterns such as trip chaining.

The trend towards smaller household size in Michigan could have significant implications on transportation system needs, dependent on associated changes in household composition and land use patterns. The life cycle changes associated with the aging population indicate more one- and two-person households (households with no children, or where children have grown and left the home). This composition is associated with a rise in per-capita auto ownership and lower vehicle occupancy (as fewer households have working parents sharing rides to work or transporting other family members from within the household to activities). The dispersion of travelers into smaller households can potentially increase vehicle-miles traveled, trip lengths, and the ratio of vehicle trips to person trips. However, as retirees and persons of retirement age represent an increasing share of one- and two-person households, it should be noted that the increasing vehicle trips associated with *empty nest* households may be spread throughout the day with retirees traveling less during peak periods and traveling more for other trip purposes throughout the day.

Shifts in land use will likely be a key determinant of how changes in household size and composition affect transportation system needs in Michigan. Smaller households represent the potential for a reduction in population density and increases in trip lengths. However, the character and density of neighborhoods, zoning, and the preferred living arrangements for one- and two-person households can significantly increase or decrease both the number of vehicle miles that may change with smaller households as well as the viability of transit, walking, and other modes.

When trip origins and destinations are closer together due to land use and zoning decisions, the number of miles needed for a trip is reduced (reducing the number of vehicle-miles). Higher densities also increase the number of trips that may originate or terminate within a particular area, increasing the potential transit market per revenue mile and contributing to the feasibility and productivity of transit routes. When households are located in close enough proximity to other activities to be within walking distance, walking becomes a transportation option that is not otherwise available. Living arrangements enable household members to share rides to activities and may enable one household member to make a single trip on behalf of the entire

household. For example, if one person makes a weekly shopping trip for a two-person household, the number of shopping trips (and miles traveled for this activity) is half of what it would be if the two people each lived alone. Household size is a key consideration in the *Land Use Technical Report*, which will further explore this trend and its potential linkages to transportation demand.

Changes in household size and composition have additional implications for the transportation system. This relationship is illustrated in **Figure 4** of the *Travel Characteristics Technical Report*, which shows that members of smaller households make more trips than members of larger households. The role of “proxy trips” (trips by one person made on behalf of the entire household) is one factor in reducing vehicle trip rates for members of larger households. Another factor is the relative ease of carpooling with other members of the same household. Consequently, the expected continued decline in average household size suggests that there will be an increase in the number of vehicle trips per person with the potential for increasing VMT.

The growth in the number of households, increased vehicle availability, and decreasing average household sizes directly influence the number of trips and resulting VMT. Given the limited growth in road system capacity, these socioeconomic changes are expected to lead to increases in congestion and decreases in system efficiency.

2.5.3 Changes in Employment

Continued overall employment growth (though at slower than historical rates) is expected to increase overall trip attractions, leading to associated increases in VMT. However, with the overall tightening of the labor force, it is also possible that employers will relocate for better proximity to localized labor pools, further altering regional VMT patterns and levels. Also, as Michigan’s employment continues to generally decentralize, provision of efficient transit service will become more difficult to achieve (due to reductions in the size of the potential transit market per revenue mile of transit service needed to reach transit markets).

Continued increases in employment in suburban and exurban areas will extend commuting fields, potentially resulting in longer work trips (time and distance), increases in VMT and congestion, and possibly an increase in reverse-commute trips in Michigan’s metropolitan regions. The latter may generate increased bi-directional peak-hour congestion. This emphasizes the need for suburban/exurban job access for workers living in central cities.

The shift to an increasingly service-oriented economy is described in **Section 2.3, Employment**. This shift will generate a relatively high level of non-home-based travel between offices, clients, and customers. This will increase off-peak travel volumes and VMT, potentially exacerbating congestion in urban-suburban regions of the state. Furthermore, as service jobs and markets comprise an increasing share of Michigan’s economy, their associated transportation needs will represent changes in system needs. These changes include the potential for changing trip lengths, origin-destination pairs, and the spreading of commuting peaks throughout the day. Service establishments often run on more flexible schedules, and employ a smaller number of people per establishment than large factories (which run on shifts). This difference has the

potential to affect both the spatial concentration and the hourly spreading of trip productions and attractions. Service establishments also tend to attract more consumers to the place of business (compared to factories, which are not consumer destinations). Consequently, the shift may result in overall higher levels of traffic and trip making.

The nature of the service establishment (such as when it operates, whether it caters to consumers on-site, and how much freight it attracts) is a key determinant of its need for roadway access, parking, and the viability of transit and other modes. The spatial location of a service establishment within a community is a key determinant of the suitability of pedestrian alternatives, as manufacturing and industrial properties are rarely located in walking proximity to residential neighborhoods (for environmental and aesthetic reasons). The implications of these changes are also discussed in other technical reports, affecting a wide range of transportation needs and alternatives, including the productivity of transit services to peak-hour roadway capacity, the efficiency of land use patterns, and the safety implications of travel at different times of day.

This change will also affect freight and commercial transportation needs since traditional manufacturing supply chains are complemented by service and manufacturing industry value chains with an increasing emphasis on the reliability and timeliness of deliveries for those inputs required to produce services. For example, health care services are extremely sensitive to the safe and timely delivery of medical devices, pharmaceuticals, and other commodities, which may represent less tonnage than traditional manufacturing supply chains, but for which the value and feasibility of the service depends heavily on the quality of the transportation system.

2.5.4 Changes in Labor Force Participation

The aging of the population and the increase in retirees account for a significant anticipated reduction in Michigan's labor force and workforce participation. As this large and growing segment of the population moves from labor markets to consumer markets, trip purposes, time-of-day for trips, and transportation needs are expected to change, as described in **Sections 2.1.2** and **2.5.1**. An issue not fully understood at this time is the degree to which the aging *baby boom* population group may continue to participate in Michigan's workforce after attaining retirement age. However, it is known that this generation represents a different set of values, preferences, and behaviors than their older age groups. For example, this generation brought unprecedented participation by women in all segments of the workforce throughout the life cycle to date as well as changes in occupational preferences and workplace operations for many sectors of the economy.

Consequently, there is reason to believe that the aging population may demand more choices regarding workforce participation (such as phased retirement and retirement careers or businesses). Should this occur, it would require a different set of transportation alternatives relative to living and daily travel options. These may include needs for signage and infrastructure to standards found safer for older drivers, transit and roadway capacity in off-peak periods to accommodate more work trips for phased retirees working on a part-time basis, and pedestrian amenities (such as sidewalks or crosswalks) in areas where these populations constitute a large share of the walking population. Further research is needed to ascertain the

specific requirements of this growing and changing population group. This is an important consideration for assessing future directions in other technical reports of the *MI Transportation Plan* and is also a focus for ongoing research and tracking beyond the scope of this plan.

2.5.5 Changes in Per-Capita Income

The changes in per capita income in Michigan are pertinent to transportation needs and activities. However, to fully understand this change, the incremental increase in per-capita income beyond the rate of inflation and the change in per-capita income for adults (versus overall per-capita income which may include dependent children) are important considerations.

Overall, increases in per capita disposable income increase the number of non-work related activities available to travelers. If income increases in low- and middle-income segments (where auto availability rates are less than one auto per person), the change has the potential to increase auto availability in a way that increases both the number of trips and the single-occupant-vehicle mode choice in some areas. Auto availability and trip purposes are further examined in the *Travel Characteristics Technical Report*.

Another potential implication of increases in per-capita disposable income pertains to the elasticity of demand for travel and activities involving travel. These elasticities are utilized in the economic impact and *Economic Outlook* components of the *MI Transportation Plan*. However, it should be noted that this socioeconomic change overall has the potential to result in growth in those travel segments (higher income segments) for whom travel behavior is less sensitive to increases in costs such as gasoline and insurance.

Rising levels of disposable income increase the resources available for discretionary activities and associated trips, hence creating the potential for increases in VMT and congestion. When income levels reach a point at which they affect the affordability of property (income supporting a household on a larger parcel, hence a lower density of development), longer trips may result from settlement in areas with lower density and greater distance from other activities. Both of these dynamics may increase VMT and congestion when the density of households decreases without a decrease in the density of employment and other activities. (Widely dispersed trip productions still attracted to more concentrated destinations result in bottlenecks as routes draw large numbers of trips from dispersed origins to major destinations.) The implications of higher income levels is consequently sensitive to land use, the density of higher income housing, and the location of discretionary activities enabled by higher disposable income.

In the lowest income brackets, there is also the potential for income to affect auto ownership. Rising levels of disposable income for low-income, zero-auto households may allow them to purchase a vehicle. Even though zero-auto households represent a relatively small share of Michigan's households, if rising income makes autos available for these households, there may be localized increases in congestion and parking issues in areas where such households are highly concentrated.

Chapter 3. Environmental Justice

This chapter describes the importance of socioeconomic considerations for achieving Environmental Justice (EJ) requirements in the transportation system. The *Travel Characteristics Technical Report* provides additional insight into the travel behavior and activities of low-income populations defined in the current report as “EJ Populations.” The following chapter explores Michigan’s EJ requirements, the implications of socioeconomic information in meeting those requirements, and the custom in which the findings of this report both complement the public involvement outreach of the MI Transportation Plan and provide a reference for addressing EJ in the development of Michigan’s transportation infrastructure and services.

3.1 Michigan’s Environmental Justice Requirements

In Michigan, the EJ population and application in the metropolitan areas are defined by the metropolitan planning organizations (MPOs). The non-MPO areas’ EJ populations and applications are defined by MDOT. The following maps show only the MDOT areas. Obviously, the urban and suburban EJ populations are significant, but are not shown on these figures.

For Michigan, low-income and minority populations are defined as follows:

Low-Income. A person whose median household income is at or below the Department of Health and Human Services poverty guidelines.

Minority. A person who is:

1. Black (a person having origins in any of the black racial groups of Africa);
2. Hispanic (a person of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race);
3. Asian American (a person having origins in any of the original peoples of the Far East, Southeast Asia, the Indian subcontinent, or the Pacific Islands); or
4. American Indian and Alaskan Native (a person having origins in any of the original people of North America and who maintains cultural identification through tribal affiliation or community recognition).

An EJ analysis includes an appropriate geographical area for a project. All areas that could logically be considered part of the “project impact area” should be evaluated. On a project level, analysis begins by identifying the population of people potentially affected and then identifying the negative effects. These data, as well as information garnered through the public involvement process for the project, are then analyzed to see if any disproportionate effect will exist as a result of the proposed action. If such an effect is identified, mitigation steps are taken.

The *MI Transportation Plan* is a policy document and, as such, contains no specific projects. Instead, the plan is a series of goals, objectives, and corresponding strategies that the state will use to implement these goals within the 25-year timeframe of the plan.

MDOT has an obligation to ensure that none of the goals or objectives contains an inherent potential for producing a disproportionate effect as implemented. Transportation policies and investments should mesh with environmental concerns. The interests, issues, and contributions of affected communities must be taken into consideration, and communities must be given an opportunity to be involved in the decision making.

3.2 Transport Implications of Environmental Justice

Understanding socioeconomic trends and conditions among Michigan's transportation system users is integral to achieving an environmentally just transportation system. EJ requires that no changes in the transportation system have disproportionately adverse impacts on traditionally under-served or disadvantaged population segments. These include not only low-income and minority households and businesses, but also groups like the elderly, children, and other groups with special needs or sensitivity to transportation projects.

The socioeconomic findings of this report are important for two aspects of EJ:

1. Ensuring that the needs of all segments are adequately addressed in the integrated plan.
2. Ensuring potential changes to transportation systems do not result in other adverse impacts to the human environment for traditionally under-served or disadvantaged segments.

Figures 24 through 28 provide some indication as to those areas where the EJ populations are concentrated. Projects associated with changes in the human environments of these areas (including highway improvements that may affect transit or pedestrian accessibility, neighborhood quality, or general public safety and welfare) must ensure that projects enhance, and do not adversely affect, the overall status of these populations.

The increasing diversity of Michigan's population requires the involvement of EJ stakeholders early in the project development process. The *MI Transportation Plan* includes an outreach to these populations throughout the overall development of the plan to complement the statistical and geographic identification of key areas in this technical report.

The *Socioeconomic Technical Report* and the results of the public involvement process for the *MI Transportation Plan* are offered as resources to enable MDOT to:

- Avoid, minimize, or mitigate disproportionately high and adverse human health and environmental effects, including social and economic effects, on minority populations and low-income populations;
- Ensure the full and fair participation by all potentially affected communities in the transportation decision-making process;
- Prevent the denial of, reduction, or significant delay in the receipt of benefits by minority and low-income populations.

3.3 Statewide EJ Populations

An analysis at the statewide level could examine the total negative and positive outcomes of transportation program of projects to see whether there is a disproportionate effect. This process involves establishing a baseline (a geographic representation of the location of those populations) and then examining MDOT's program as a whole as it relates to these areas.

Figure 25 shows the low-income census block groups that are considered EJ population. **Figures 25 through 28** show the four "race-based" populations as they relate to EJ: Asian-American, Hispanic, African-American, and Native American.

Figure 25. Percent of 2000 Population below Poverty Line

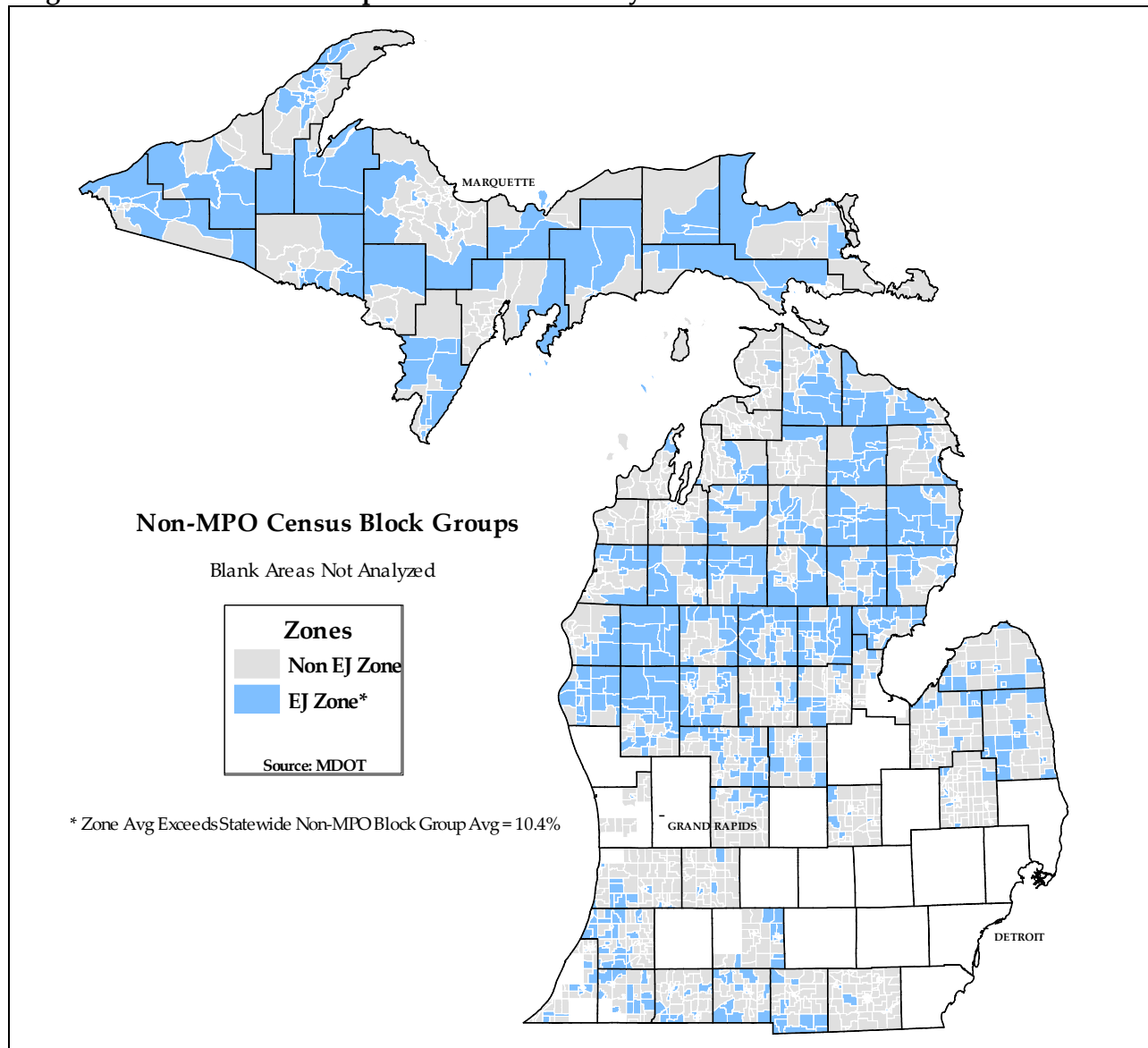


Figure 26. Percent Asian-American Population (2000)

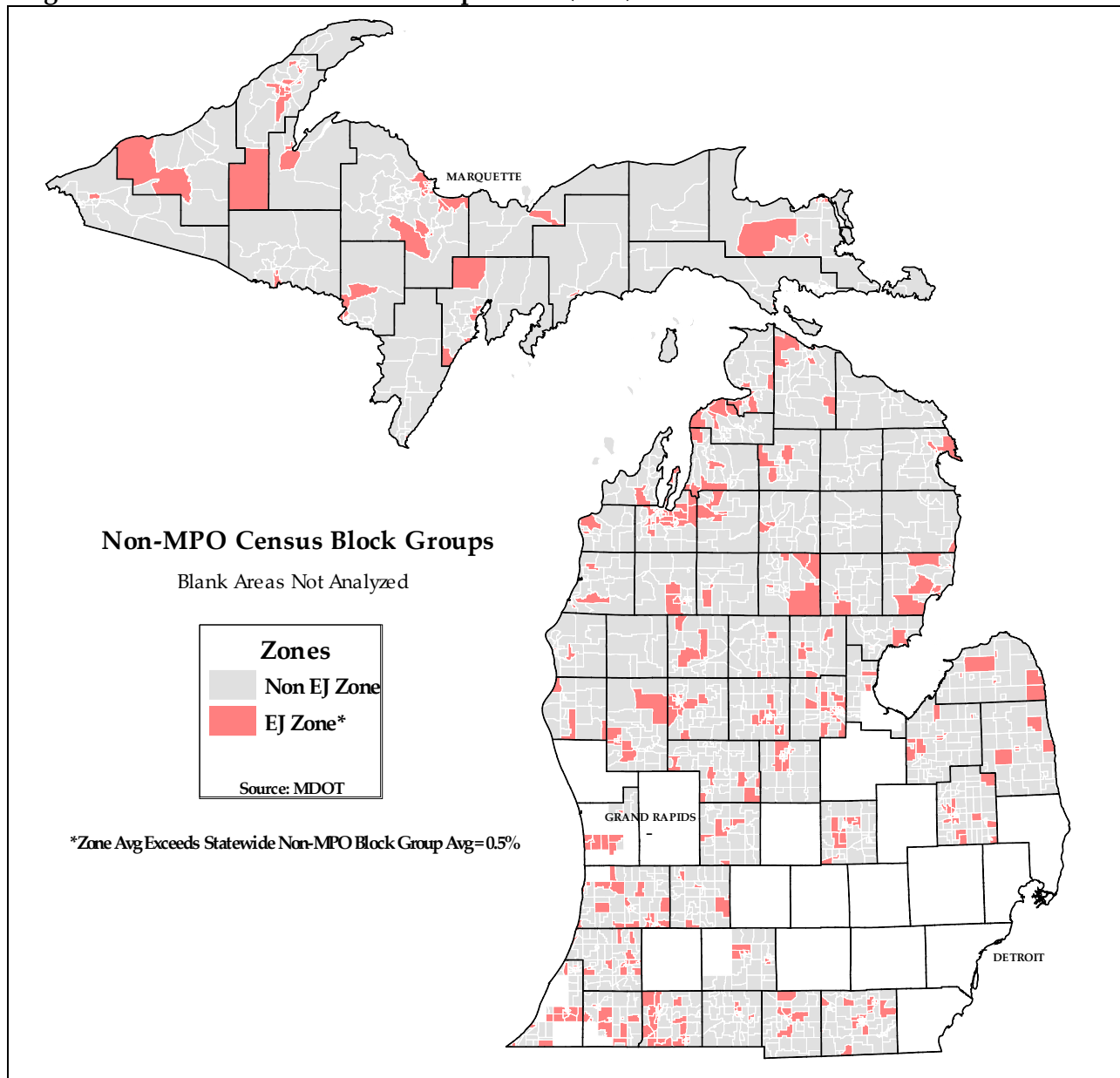


Figure 27. Percent Hispanic Population (2000)

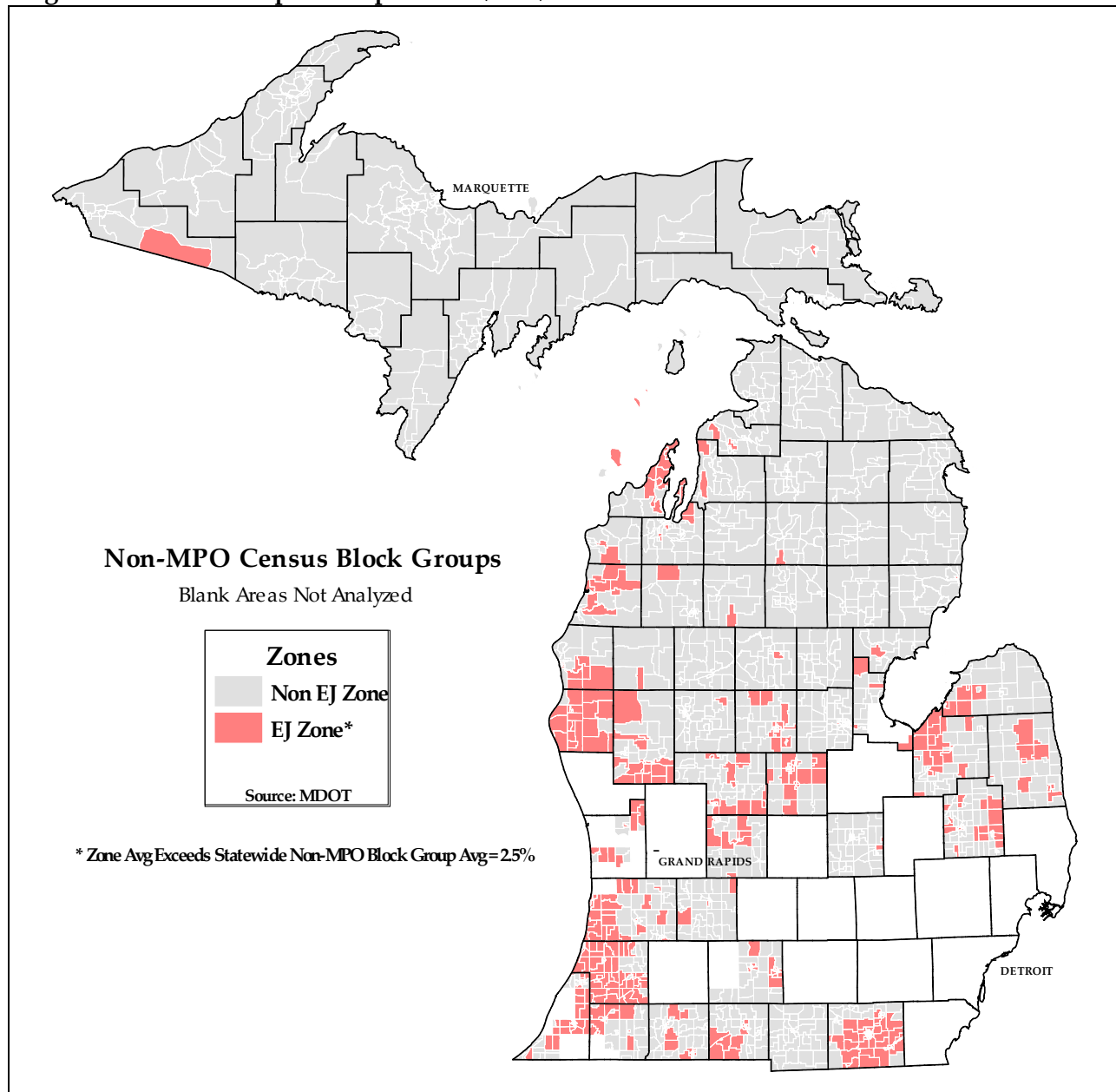


Figure 28. Percent African-American Population (2000)

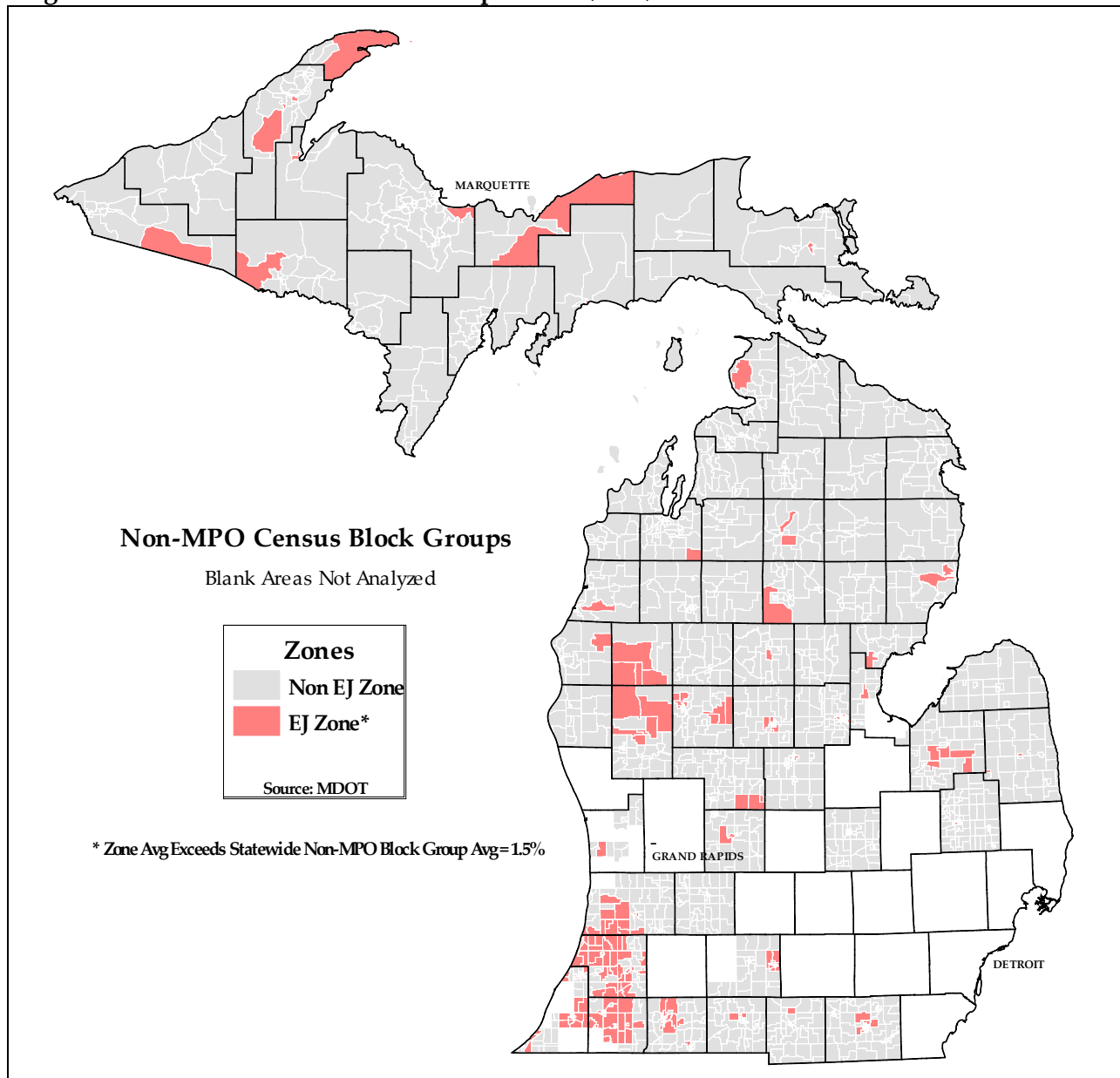
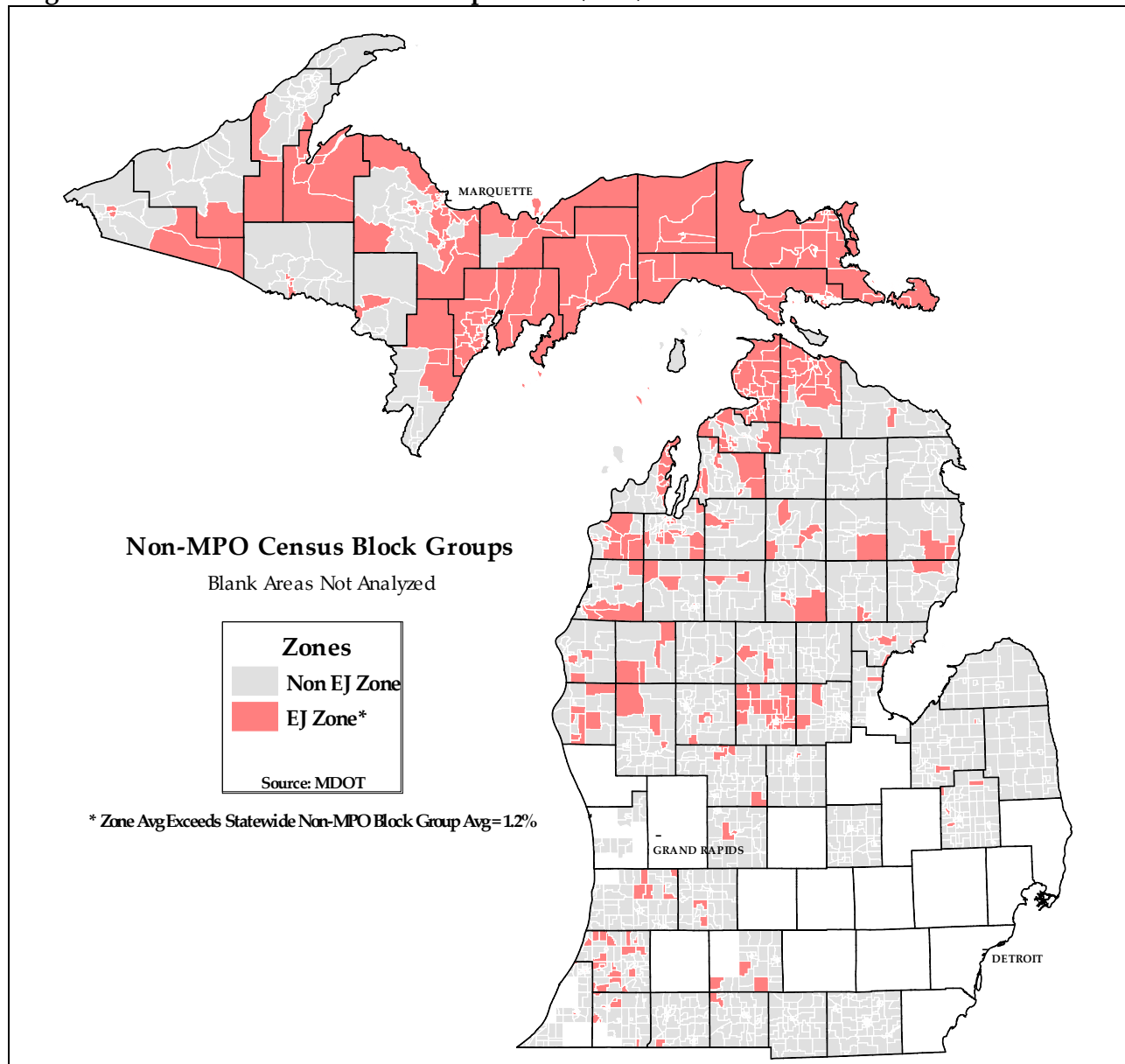


Figure 29. Percent Native American Population (2000)



Chapter 4. Integration of Socioeconomic Considerations

The socioeconomic considerations of this report and the associated *Travel Characteristics Technical Report* are critical to the development of an integrated vision for transportation in Michigan. This report has set forth some key segments of Michigan's system users that are changing in their shares of Michigan's transportation system use, representing a set of changing conditions under which the integrated system will be expected to perform in the future. The following is a synopsis of how the findings of this report are relevant to the larger vision of an integrated transportation system.

4.1 Key Segments and Trip Purposes

4.1.1 The Aging Population

The dominant socioeconomic change in Michigan is expected to be the aging population. This is discussed in **Section 2.5, Transport Implications of Demographics**. The *Land Use, Transit, Safety, and Travel Characteristics* reports further address the needs of this segment relative to how each respective aspect of the system can support this major shift in activities and transport destinations in Michigan.

4.1.2 Change to a Service Economy

While the increasing prevalence of retirees as a population segment will change the demands on Michigan's transportation system, the need for workers and businesses to serve this population and to provide value-added services elsewhere in the economy will become increasingly important. **Figure 18** generally illustrates the magnitude of Michigan's economic shift towards a more service-oriented economy. This change is further examined in the *Economic Outlook* component of the *MI Transportation Plan*. Transportation infrastructure and services developed over many years to meet manufacturing commuting patterns and a less mature-aged population will require changes to serve these changing needs. The effects are likely to include:

1. Changes in the spreading of traffic and transit peaks as work commuting shifts and patterns change.
2. Changes in the need for roadway, pedestrian, and transit access as land use patterns support service establishments.
3. Increased opportunities for travel substitutes in service industries (such as tele-medicine and tele-business) to complement and support the transportation system.
4. Increasing time sensitivity for freight shipments, and an increase in the demand for time-sensitive mail and contract services throughout the state.

Consequently, the changes in employment sectors indicated in this report are important considerations for integrating the *Economic Outlook, Freight, Highways and Bridges, Transit, and Land Use* reports, and other components of the *MI Transportation Plan* into an integrated vision for a transportation system supporting Michigan's long term economic activities, markets, and potential.

4.1.3 Immigrant and non-English Speaking Populations

Figure 26 and **Figure 27** indicate those areas where Asian and Hispanic populations are concentrated. In addition to those populations, the national trend of growing foreign-born and non-English speaking populations is an important consideration for an integrated transportation system. The increasing diversity of transportation markets has implications for the accessibility, awareness, safety, and overall performance of the system across modes.

4.2 Opportunities and Barriers

While the socioeconomic makeup of Michigan's transportation system does not yield a set of policy-sensitive opportunities and barriers for system performance per se, the socioeconomic aspects of the population are important indicators of how responsive the demand may be to the various modes. For example, the consideration of barriers affecting activities accessed through highway or transit modes must take into account that issues such as inclement weather, night-time driving, personal security, and the distance of travel may affect different segments in different ways. Consequently, the socioeconomic findings of this technical report are an important reference for understanding those aspects of system development that may help or hinder the participation by different socioeconomic segments in Michigan's economy.

Chapter 5. Conclusion

This technical report was offered as a resource for understanding socioeconomic conditions pertaining to Michigan's transportation system, and as an input to the integrated *MI Transportation Plan*. The findings highlighted changes in population, household size and composition, age groups, employment, and environmental justice populations. The implications of these socio-economic changes for transportation planning and decision-making were subsequently discussed.

The high-level findings of the demographics in Michigan that will be changing in the next 25 years include:

- population growth will continue, albeit at a much slower pace;
- the percentage of the population who are elderly will increase significantly and is the dominating factor in the increase in population;
- average household size will continue to decrease, while the growth in the number of households will continue; and
- the labor force will tighten as compared to the past 15 years.

Linkages between the findings of this report and other technical reports of the *MI Transportation Plan* were identified relative to how socioeconomic change serves as a driver for the conditions and performance of Michigan's transportation modes as well as the emerging and changing labor and consumer markets served by the system to the year 2030.



*Providing the highest quality integrated transportation services
for economic benefit and improved quality of life*

